Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

VOL. IV, No. 6
June 1940

Foreign Agriculture

. . . . . a Review of Foreign Farm Policy, Production, and Trade

U. S. DEPARTMENT OF AGRICULTURE
LIBRARY
NOV 12 [illegible]
BELTSVILLE BRANCH

Issued Monthly by
UNITED STATES DEPARTMENT OF AGRICULTURE
OFFICE OF FOREIGN AGRICULTURAL RELATIONS
WASHINGTON, D.C.

CONTENTS

Page

- CANADA'S WARTIME AGRICULTURAL MEASURES . . . 333
  - Agricultural production and trade . . . 333
  - Wartime agricultural measures . . . 338
    - Objectives . . . 338
    - Organization, procedure, and operations . . . 339
      - The Agricultural Supplies Board . . . 340
      - The Bacon Board . . . 344
      - The Wartime Prices and Trade Board . . . 345
      - The Anglo-Canadian Egg-purchase Agreement . . . 346
  - Significance of Canada's agricultural program . . . 347
    - Contrast with Canadian expansion during 1914-1918 . . . 347
    - Minor importance of acreage adjustments . . . 348
    - Possible shifts in livestock production . . . 349
    - Possibility of increased efficiency in production . . . 351
    - Price trend . . . 351
    - Policy of export subsidies . . . 352
    - Change in value of foreign agricultural trade . . . 353
  - Conclusions . . . 354

- JAPAN'S FOOD SELF-SUFFICIENCY . . . 355
  - Agricultural production . . . 356
    - Effects of population growth . . . 356
    - Volume of output . . . 356
  - Rice - the key to Japan's food problem . . . 357
    - Status and history . . . 357
    - Problem of supply . . . 358
    - Recent developments . . . 360
    - Future outlook . . . 362
  - Other crops . . . 365
    - Wheat . . . 365
    - Barley . . . 367
    - Other cereals . . . 368
    - Leguminous crops . . . 368
    - Tuber and root crops . . . 368
    - Vegetables and fruits . . . 369
    - Animal foodstuffs . . . 369
  - Foreign trade and self-sufficiency . . . 370
  - Quantity versus quality of Japanese food . . . 373
  - Conclusions . . . 374

- CONTROL OF AGRICULTURAL PRICES IN THE UNITED KINGDOM . . . 377
  - Extent of control . . . 377
  - Supervision of prices . . . 378
  - Cost of program . . . 378
  - Effects . . . 378

CANADA'S WARTIME AGRICULTURAL MEASURES . . . . .

By Clifford C. Taylor*

Agriculture is Canada's leading single industry. Wheat is the principal crop, of which Canada is the world's leading exporter. Other grains, cattle and hogs, dairy products, fruits, and tobacco are also important. The United Kingdom is Canada's chief market for agricultural products, as well as for United States farm products. United States pork products, wheat, apples, leaf tobacco, and certain other items compete with corresponding Canadian products in the United Kingdom, where the latter enjoy either duty-free or preferential tariff treatment. Consequently, the character and operation of Canada's wartime agricultural measures are of great interest to United States agriculture. Before discussing the wartime measures, however, a brief description of Canadian agriculture seems appropriate.

AGRICULTURAL PRODUCTION AND TRADE

Approximately 59.3 million acres were devoted to field crops in Canada during 1939, compared with 33.4 million in 1914 and 51.4 million in 1918. Land in farms totaled 163 million acres distributed among 728,623 farms, according to the Candian census of 1931. Statistics for the same year indicated that agriculture accounted for 28.7 percent of the gainfully occupied population and 33.0 percent of the gainfully occupied males.[1]

Canada's principal field crops for 1939 were estimated at a gross value of $633,130,000 (compared with $550,000,000 in 1938), of which wheat accounted for $252,779,000.[2] Oats, barley, rye, mixed grains, hay, fodder corn, potatoes, turnips, flaxseed, and sugar beets comprised the bulk of the remainder. The annual gross value of Canada's total agricultural output, including field crops, livestock, dairy products, fruits and vegetables, poultry products, etc., is somewhat more than 1 billion dollars. The acreage and production of Canada's principal crops for 1914, 1918, 1938, and 1939 are shown in tables 1 and 2, while livestock numbers for the same years are shown in table 3.

---

* Agricultural Attaché, Ottawa, Canada.

[1] [illegible] 1939. Dominion Bureau of Statistics, Ottawa, 1939.

[2] *Monthly Bulletin of Agricultural Statistics*, January, 1940; Dominion Bureau of Statistics, Ottawa. The values indicated here and throughout this analysis are in Canadian dollars, except when otherwise stated.

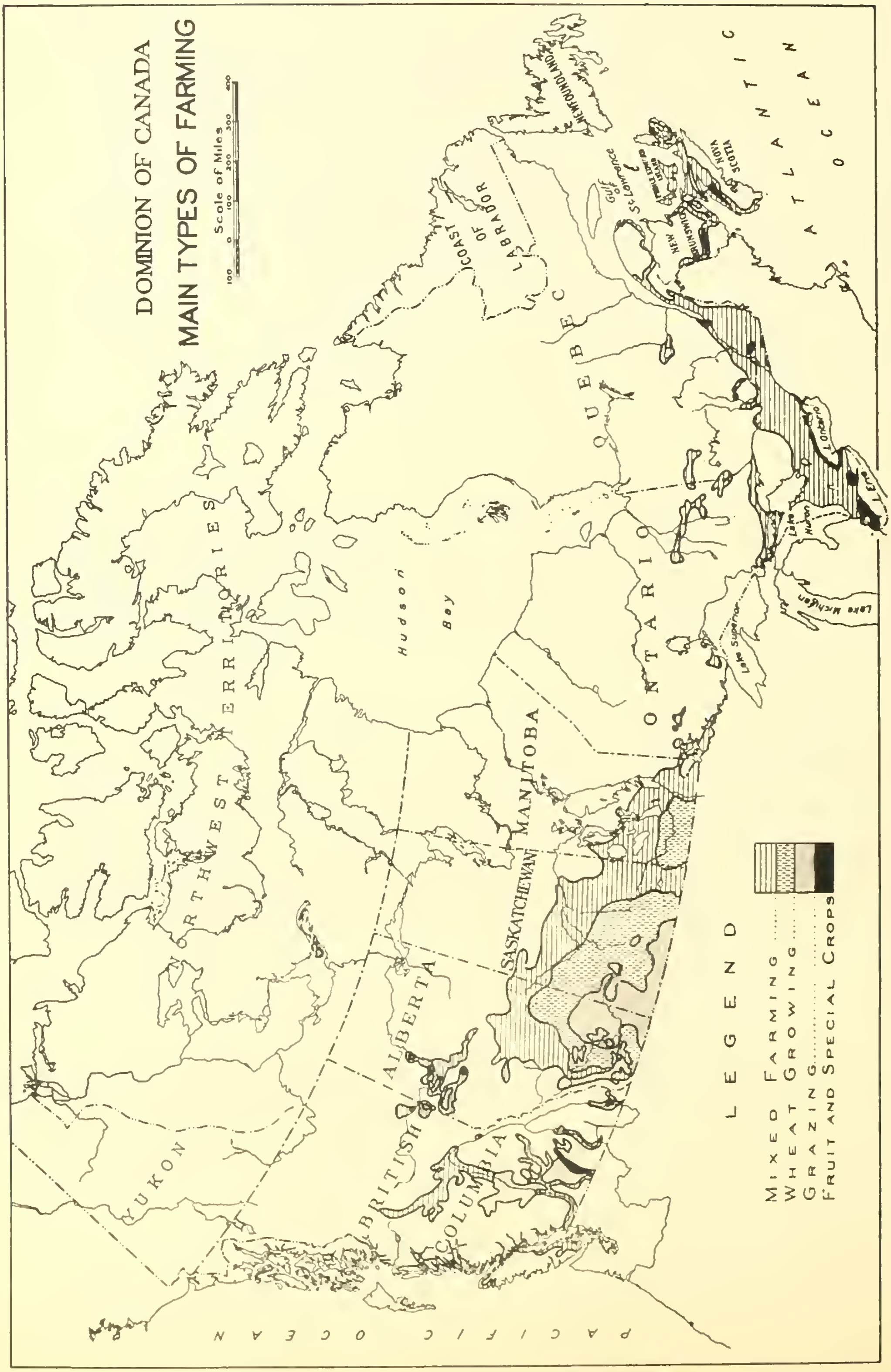

Figure 1.-Main types of farming in Canada. (Source: *The Canada Year Book, 1939*)

TABLE 1.–*Acreage of principal Canadian crops, 1914, 1918, 1938, and 1939*

CROP	ACREAGE				1939 ACREAGE AS PERCENT OF THAT IN –	
	1914	1918	1938	1939	1914	1918
	Thousand acres	*Thousand acres*	*Thousand acres*	*Thousand acres*	*Percent*	*Percent*
Wheat	10,294	17,354	25,931	26,757	260	154
Oats	10,062	14,790	13,010	12,790	127	86
Barley	1,496	3,154	4,454	4,347	290	138
Rye	111	555	741	1,102	993	199
Peas	206	236	80	76	37	32
Beans	44	229	71	73	166	32
Buckwheat	354	548	376	335	95	61
Mixed grains	463	922	1,160	1,218	263	132
Flaxseed	1,084	1,068	[1] 210	[1] 307	28	29
Corn for husking	256	250	180	183	72	73
Potatoes	476	735	522	518	109	70
Turnips	175	325	190	190	109	58
Hay and clover	7,997	10,545	8,820	8,837	110	84
Alfalfa	90	196	859	947	1,052	483
Fodder corn	317	502	460	495	156	99
Grain hay	–	[2] 60	950	1,000	-	[2] 1,667
Sugarbeets	12	18	48	62	517	344
Tobacco	10	13	84	93	930	715
Total field crops	33,447	51,500	[3]58,146	[3]59,330	177	115

[1] Not including flax for fiber.

[2] For 1919.

[3] At the time of the 1931 census, fruits occupied about 300,000 acres and market gardens about 100,000 acres in addition to the field crop acreage.

The Canada Year Book; Monthly Bulletin of Agricultural Statistics. Dominion Bureau of Statistics.

Wheat is the leading crop of Canada and occupies by far the largest proportion of the total farm acreage - about 45 percent, as shown in table 1. It has been said (by Sir Henry Rew) that "the exportation of wheat is the foundation of Canada's commerce, and on its development the economic structure of the nation largely rests." Consequently, governmental farm aid measures during the past decade have been largely devoted to wheat.[3]

Wheat is also Canada's leading agricultural export product (see table 4). Considerably behind wheat, in order of export value, are meats (chiefly bacon and hams), cattle, cheese, fruits (chiefly apples), barley, oats and oat products, leaf tobacco, and processed milk. In most cases - as for wheat, barley, wheat flour,

---

[3] See "Farm Aid in Foreign Countries," *Foreign Crops and Markets*, June 1, 1936; "Foreign Agricultural Policies: Canada" and "Agricultural Price Control in Foreign Countries: Canada," *Foreign Agriculture*, February 1938 and February 1939, respectively.

TABLE 2.–*Production of principal Canadian crops, 1914, 1918, 1938, and 1939*

CROP	PRODUCTION				1939 PRODUCTION AS PERCENT OF THAT IN–	
	1914	1918	1938	1939	1914	1918
	Million bushels	*Million bushels*	*Million bushels*	*Million bushels*	*Percent*	*Percent*
Wheat	161.3	189.1	360.0	489.6	304	259
Oats	313.1	426.3	371.4	384.4	123	90
Barley	36.2	77.3	102.2	103.1	285	134
Rye	2.0	8.5	11.0	15.3	765	180
Peas	3.4	4.3	1.4	1.3	38	30
Beans	.8	3.6	1.6	1.5	188	43
Buckwheat	8.6	11.4	7.1	6.8	79	60
Mixed grains	16.4	35.7	39.2	44.1	269	124
Flaxseed	7.2	6.1	1.3	2.2	30	36
Corn for husking	14.0	14.2	7.7	8.1	58	57
Potatoes	85.7	104.3	[1] 59.9	[1] 60.7	71	58
Turnips	69.0	122.7	[2] 70.6	[2] 69.6	101	57
Apples (grown for sale)	–	–	15.7	16.4	–	-
	Million tons	*Million tons*	*Million tons*	*Million tons*		
Hay and clover	10.3	14.8	13.8	13.4	130	91
Alfalfa	.2	.4	2.1	2.2	1,100	486
Fodder corn	3.3	4.8	4.4	4.5	136	94
Grain hay	–	.2	1.7	1.5	–	1,020
Sugarbeets	.1	.2	.5	.6	600	336
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*		
Tobacco	10.0	14.2	101.4	108.8	108	77
Flax fiber	–	–	2.7	4.1	–	–

[1] Converted at 1.66 bushels per hundredweight

[2] Converted at 1.85 bushels per hundredweight

The Canada Year Book; Monthly Bulletin of Agricultural Statistics, Dominion Bureau of Statistics.

fresh apples, processed fruit, canned vegetables, bacon and other meats, lard, and leaf tobacco - the bulk of exports is destined to the United Kingdom. For cattle, seeds, and a few minor items, however, the United States is the chief export market.

On the other hand, Canada is an important market for such United States farm products as raw cotton, fresh fruits, and certain fresh vegetables.[4] Canadian imports of agricultural products from the United States in 1939 were valued at $69,100,000, compared with $64,100,000 in 1938; while all imports from the United States were valued at $496,000,000 in 1939 and at $424,700 000 in 1938. Canada is ordinarily the largest foreign market for our nonagricultural exports.

---

[4] For an analysis of United States-Canadian agricultural trade, see "Agriculture in the New Canadian Trade Agreement," *Foreign Agriculture*, December 1938.

TABLE 3.—*Livestock numbers in Canada. 1914, 1918, 1938. and 1939*

KIND	NUMBERS ON FARMS JUNE 1				1939 NUMBERS AS PERCENT OF THOSE IN –	
	1914	1918	1938	1939	1914	1918
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Percent*	*Percent*
Cattle:						
Milk cows	2 673	3 539	3 874	3.874	145	110
Other	3.364	6,507	4 637	4 601	137	71
Total	6 037	10.046	8 511	8 475	140	84
Sheep	2 058	3 053	3 415	3 366	164	110
Hogs						
Under 6 months	–	–	2 496	3 174	–	–
Over 6 months	–	–	991	1 120	–	–
Total	3.434	4.290	3 487	4.294	125	100
Horses	2,948	3 609	2.821	2 824	96	78
Chickens	[1] 29.773	31 334	53 775	58 510	[1] 197	187
Turkeys	[1] 863	1.062	2 040	2 476	[1] 287	233

---

[1] Figures from 1911 census

The Canada Year Book; Monthly Bulletin of Agricultural Statistics. Dominion Bureau of Statistics

TABLE 4.—*Canadian exports of selected agricultural products. by value, 1938 and 1939*

ITEM	TOTAL		TO UNITED KINGDOM		TO UNITED STATES	
	1938	1939	1938	1939	1938	1939
	Million dollars	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*
Wheat[1]	89 4	109 1	51 7	40 1	12 0	50 7
Barley	8 7	7 9	7 2	3.8	6	3 3
Oats	2.7	4 1	2 1	1 2	(2)	2 2
Other grains	1 5	3.4	7	8	.1	1.5
Total grains	102 3	124 5	61 7	45 9	12 7	57.7
Wheat flour	17 6	16 4	9 6	9 1	2	3
Apples, fresh	9.7	5 9	8 7	4.8	(2)	1
Processed fruits	2 6	3 6	2 2	3 3	(2)	(2)
Total fruits	[3] 13 2	[3] 10 6	[3] 11 5	[3] 8 8	[3] 4	[3] .6
Vegetables	6 5	10 3	4 3	7.8	9	1 2
Tobacco	5 5	10 2	5.2	10.0	(2)	(2)
Cattle and other stock	10 6	16.8	2 5	4	7.8	16 1
Bacon and other meats	36 3	37 4	33.8	35 0	1 0	1.0
Lard	1 7	6	1 6	5	(2)	0
Cheese	11 9	12 2	11.0	10 8	.3	1 0
Other dairy products	4 3	6 0	2 8	4.0	.1	.2
Total dairy products	16 2	18 2	13 8	14 8	.4	1 2
Total agricultural products[4]	247 5	284 6	156 3	141 4	43 6 (34 1)	102 3 (57 6)
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
Agricultural exports as percent of total exports (excluding gold)[4]	29 6	30 8	46 0	43 1	16 1 (13 0)	26 9 (17 2)

---

[1] Includes in-transit wheat to the United States but actually destined for other countries. The United States imported wheat for consumption or for milling in bond to the value of only 2.5 and 6 0 million dollars in 1938 and 1939. respectively

[2] Less than $50 000

[3] Includes small quantities of berries and other fruits

[4] Figures in parenthesis exclude in-transit wheat

Quarterly Report, Trade of Canada, December. 1939.

~~~

WARTIME AGRICULTURAL MEASURES

OBJECTIVES

Canada's wartime agricultural policy has thus far revealed four main objectives: (1) to sell Great Britain the food it needs to win the war; (2) to give financial aid to producers of export products which are unwanted in wartime; (3) to stabilize prices; and (4) to simplify the problem of post-war readjustment.

Canada's efforts to supply food to help win the war have consisted chiefly of attempts to sell its available supplies at prices satisfactory to the Canadian producer. No need has yet arisen for any important expansion of agricultural production such as occurred during 1914-1918.

During 1914-1918 Canada's crop acreage increased from 33 to 51 million acres. Since 1918 crop acreage has increased further to 59 million acres. All of the increase consists of wheat, other changes consisting largely of compensating shifts in the acreages of other grains.

A near-record wheat crop in 1939 gave Canada an enormous exportable surplus - enough to meet all expected demands for 2 years, even if poor yields are obtained in 1940. Similarly, a phenomenal increase in hog numbers during 1939, equal to the combined increase during the four years 1914-1918, has already provided a record supply of Canadian bacon for export.

At the same time Britain's need for foods from Canada has been minimized by a combination of British policies such as food rationing, British food-acreage expansion, conservation of foreign exchange, purchases from neutral countries whose foods might be sold to Germany, and purchases from other Empire or non-Empire countries having sterling exchange balances which could best be used for the purchase of foods. Canada's objective has therefore been directed largely toward inducing the British Government to buy more of Canada's available supplies instead of trying to expand Canadian production.

Financial aid was necessary for certain groups of Canadian farmers whose production for export was curtailed rather than expanded as a result of the war. Canadian producers of apples and of tobacco, with about half of their production available for export, faced financial disaster when the United Kingdom decided last September that its imports of such products would have to be drastically curtailed in order to conserve shipping and foreign exchange.

The Canadian Government therefore decided to come to the aid of these wartime casualties. It first obtained Britain's agreement to import 50 percent as many Canadian apples as the average of the two preceding years and to release foreign exchange to British tobacco buyers for the purchase in Canada of 8 million pounds of tobacco, about 20 percent of the year's export surplus. Canada then subsidized the sale of apples for manufacture and for export by means of price guarantees and is now considering a means of aiding growers' efforts to curtail tobacco production drastically in 1940 and thus prevent a disastrous price collapse.
~~~

Canada's agricultural price policy recognizes that modest increases in the prices of most agricultural products are justified as a means of restoring normal purchasing power to Canadian farmers. Extreme price increases, however, are to be prevented in the interests of both Canadian consumers and the British Treasury.

It is also recognized that inflated prices for the products sold to the British Government magnify the foreign exchange problem and increase the possibility that sales to the British Government can never be paid for in full. Britain's shrewd buying policy and competition from other exporting countries have held down prices of export products even more than Canada would have liked. Except in the case of import items, such as sugar and wool, strenuous efforts have been exerted to stabilize prices at reasonable levels.

Simplification of the problem of post-war agricultural adjustment is a fourth objective. Canada is essentially a wheat- and livestock-producing country, with its production of feed approximately balanced to meet the requirements of its livestock. Speculative expansion of the wheat acreage is not desired because it would nullify the progress which has been made in recent years toward the elimination of submarginal wheat areas, and would tend to encroach on land which is more urgently needed for the production of feed grains, hay, and pasturage.

Canada's agricultural policy contemplates maintaining prices for the various products in a fairly normal relation to each other, so that a reasonably normal balance may be maintained between the various forms of agricultural production. By such means painful post-war readjustments of prices and of production are to be avoided.

ORGANIZATION, PROCEDURE AND OPERATIONS

Canada's wartime agricultural measures have been taken under the general authority of the War Measures Act.[5] No special legislation has been necessary to deal with the recent wartime problems of agriculture. On September 1, 1939, a Proclamation was issued bringing Canada under the War Measures Act. Since then Orders-in-Council having the force of new legislation have been issued, dealing, among other things, with trading, exportation, importation, production, and manufacturing. Even the necessary funds are made available out of the $100,000,000 war appropriation by merely obtaining Cabinet sanction.

Canada has established three Boards to deal with its principal wartime agricultural questions: (1) the Agricultural Supplies Board, to adjust Canadian agriculture to meet wartime needs; (2) the Bacon Board, to administer the Anglo-Canadian Bacon Agreement; and (3) the Wartime Prices and Trade Board, to stabilize prices of both agricultural and nonagricultural products.[6]

[5] Revised Statutes of Canada, Chapter 206, 1927.

[6] The Foreign Exchange Board, although not primarily an agricultural agency, profoundly affects the agricultural situation by maintaining a depreciated currency so as to facilitate exports and to hinder imports. In addition, the War Supply Board, which buys military supplies, including foods, has a minor relation to Canadian agriculture.

Each of the three newly created Boards, in cooperation with the Department of External Affairs and other regular departments, conducts negotiations with the British Government in order to obtain a larger share of the British market for Canadian export products and to obtain adequate supplies of Canadian import requirements.

In this connection special mention should also be made of the Imperial Cabinet Conference which was called in London at the end of October, attended by a mission from Canada.[7] The negotiations conducted by this military and economic mission in London extended over a period of two months and were of fundamental importance.

In its economic phases, the negotiations of this mission were largely responsible for the British Government's agreement to release foreign exchange for the purchase of Canadian apples, tobacco, honey, poultry, and eggs in quantities larger than at first appeared possible. Another outstanding achievement was the Anglo-Canadian Bacon Agreement, by which the British Ministry of Food contracted for a definite quantity of Canadian cured pork at a fixed price. This and the Egg-Purchase Agreement later discussed are the only instances in which a fixed price has been set for Canadian agricultural exports. Similar negotiations for an Anglo-Canadian Cheese Agreement were undertaken but were temporarily abandoned. However, now that the cheese-making season is at hand and British sources of supplies in Denmark and The Netherlands have been cut off, such an agreement may be concluded under price conditions more favorable to Canada than existed at that time. The mission may also be credited with having evolved arrangements which made possible the continuance of the purchase of Canadian wheat on a basis whereby large but irregular purchases by the British Cereals Board would not seriously disturb the trend of wheat prices at Winnipeg.

THE AGRICULTURAL SUPPLIES BOARD - This Board (formerly Committee) was set up by Order-in-Council on September 9, 1939, to direct and regulate the production and marketing of Canadian farm products, excepting wheat. It is composed of high-ranking officials of the Ministry of Agriculture, under the chairmanship of the Director of Marketing Services. The powers of the Board are as follows:

(1) to establish advisory committees, and to consult or collaborate with any Dominion or Provincial Agricultural Service;

(2) subject to the approval of the Governor in Council on the recommendation of the Minister, to buy, sell, store, distribute, and regulate the distribution of supplies for use in agricultural production;

(3) to formulate and submit to the Wartime Prices and Trade Board measures designed to prevent abnormal relationships, likely to result in unbalanced production, in prices of supplies for use in agricultural production and agricultural products;

(4) to arrange through existing Government agencies for statistical data with regard to supplies for use in agricultural production and agricultural products;

---

[7] The mission was headed by the Hon. T. A. Crerar, Minister of Mines and Resources, who served as Minister of Agriculture in 1917 and who is recognized as a wheat authority. In addition to military authorities Mr. Crerar was accompanied by Mr. A. M. Shaw, Director of Marketing Service of the Department of Agriculture; Mr. George McIvor, head of the Canadian Wheat Board, and Mr. L. D. Wilgress, Director of Commercial Intelligence of the Department of Trade and Commerce.

(5) to distribute informative literature dealing with the production and distribution of supplies for use in agricultural production and agricultural products, and with the approval of the Governor in Council to conduct advertising campaigns;

(6) to require any person producing, dealing in, or having control of any supplies for use in agricultural production or accommodation suitable for the storage thereof to make periodical or other returns at such times and containing such particulars as may be required by the Board;

(7) to make recommendations to the Minister for submission to the Governor in Council with respect to the withholding of licenses for the exportation of supplies for use in agricultural production.

The chief objective of the Board is to keep Canadian agriculture functioning in a manner which will meet the food and fiber requirements of the people in Canada and their overseas allies during the period of the war, at the same time minimizing the problems of post-war agricultural readjustment. It coordinates the work of the several divisions of the Department of Agriculture and works in close harmony with the other boards and departments of the Dominion Government.

The Board suggests production programs which, if approved by the Economic Policy Committee of the Government and by the Cabinet Council, are transmitted through the Provincial Ministries of Agriculture to the many Provincial committees for their guidance. By an extensive publicity program it urges farmers to adopt improved methods of farming in order to improve quality, reduce costs, and, in a few cases, expand production.

The Agricultural Supplies Board has established several special committees to deal with particular commodities.

The *Seed Supply Committee* has made a survey of the entire seed situation in Canada and has used its findings as a basis for recommendations to the Canadian Government and to the Provinces for action with respect to the conservation of seed supplies.

Fiber flaxseed has claimed particular attention. Northern Ireland notified Canada of an immediate demand for 30,000 bushels of fiber flaxseed, and Great Britain notified Canada of a demand for 5,000 tons of fiber next year. This parallels the situation which occurred during the last World War. By Order-in-Council P.C.2906 of October 5, 1939, the Agricultural Supplies Board was authorized to purchase fiber flaxseed and to prohibit exports of both seed and fiber except under license from the Board. Of 45,780 bushels estimated as available in Canada, the Board bought as much as possible at $5.50 per bushel for No. 1 certified seed, or $4.25 for uncertified seed. Of these purchases 17,754 bushels were shipped to Northern Ireland, leaving approximately 30,000 bushels for seeding in Canada in 1940 - enough for about 20,000 acres, as against 10,536 acres in 1939. A new 3,000-acre project in the Ottawa Valley is being privately financed as to mills and equipment, while the Quebec Government is supporting three units of 1,000 acres each. In order to justify the expenditure of about $45,000 per unit of 1,000 acres for mills and equipment, a contract is being sought with the British Fiber Control Board which will guarantee minimum prices for fiber produced in Canada during the next two seasons.

Seed potatoes received early attention. By Orders-in-Council P.C.3292 of October 25 and P.C.3711 of November 17, 1939, authority was given to the Agricultural Supplies Board to purchase up to 40,000 bushels of disease-free "foundation stock" seed potatoes (which might otherwise have been sold in the United States) at prices up to 25 cents per bushel over the market price for No. 1 certified seed potatoes, but not exceeding $1.10 per bushel at points of origin, for resale to "select" growers of certified seed potatoes. Approximately 25,000 bushels were purchased; and an additional 10,000 bushels, although not actually bought by the Board, were held for use in Canada subject to order by the Board.

The Seed Supply Committee found that Canadian supplies of alsike clover seed were 275,000 pounds short of estimated requirements for 1940 seeding; whereas supplies of red clover and alfalfa seed were 433,000 pounds and 1,882,000 pounds, respectively, in excess of estimated requirements. Anticipating the substitution of other clover or grass seeds for alsike clover seed, no action was taken to control these supplies.

The Seed Supply Committee has conducted an educational campaign urging farmers to give special attention to the selection of approved varieties and strains of seed grains, especially the rust-resistant varieties, and has sponsored local exchanges to ensure that the best seed would be used for planting.

To ensure adequate supplies of various kinds and varieties of vegetable seeds in Canada for the duration of the war and to establish Canadian vegetable-seed production on a more permanent basis, the Board was authorized by Order-in-Council P.C. 1/1045 of March 19, 1940, to spend $2,000 for the purchase and distribution to farmers in suitable vegetable-producing areas of small lots of beet, carrot, cauliflower, citron, corn, cucumber, eggplant, lettuce, muskmelon, onion, parsnip, radish, spinach, squash, tomato, vegetable marrow, bean, and pea base stock seeds.

A *Fertilizer Supply Committee* was set up by the Agricultural Supplies Board to promote the use of fertilizers, to ensure adequate supplies of fertilizer materials, to encourage their efficient manufacture, and if necessary to prevent export. By Order-in-Council P.C.3124 of October 12, 1939, licenses were required for the export of any kind or analysis of fertilizer excepting calcium cyanamide; and, in practice, licenses have been issued only when approved by the Provincial Ministry of Agriculture. As a means of reducing fertilizer costs, formulas for the manufacture of fertilizer are being confined to the analyses required for each crop as recommended by the Advisory Fertilizer Board of Council of each Province and approved by the Provincial Ministry of Agriculture.

Potash supplies have caused some concern. The French Government, however, has informed the Board that French potash-mining concerns are prepared to supply Canada's requirements of potash salts at reasonable prices.

A *Pesticides Supply Committee* to conserve the supply of essential chemicals used as insecticides and fungicides was established by the Board. The Committee is promoting the production of copper sulphate and arsenicals in Canada. but for the most part, adequate supplies of pesticides are expected to be obtainable from the United Kingdom and the United States.

The *National Apple Advisory Committee*, established by the Agricultural Supplies Board on October 25, 1939, has attracted more attention than the three supply committees previously discussed. Its work actually dates from the preliminary conferences of apple-producing, -shipping, and -merchandising interests held at Ottawa during the second week of September, and most of its activities are the outgrowth of recommendations made at that time. By numerous Orders-in-Council since September 25, 1939, authority was given for regulating and subsidizing the sale of Canadian apples. Confronted with a near-record apple crop of which only about one-quarter instead of the usual one-half could be exported to the United Kingdom, domestic consumption had to be increased, a diversion scheme devised, and minimum prices guaranteed. Various methods were evolved for dealing with the problem in the producing areas.

In Nova Scotia the Dominion Government guaranteed canners and driers against losses incurred in the purchase of up to 1.5 million barrels of export-quality apples (No. 1 and Domestic) for manufacture into canned or dried apples. The prices established were $1.47 for No. 1 large, $1.29 for No. 1 small, $1.02 for Domestic large, and 81 cents for Domestic small. These prices represented 65 percent of the previous 3-year average net return to growers. Lower-grade apples, used largely for the production of cider vinegar, and canned apple juice, were not included in the price guarantee. All sales were required to be pooled, whether the apples were for processing or for domestic or export markets. As a result, the net return to producers is not likely to be more than 50 percent of the previous 3-year average, and the Government's loss from subsidizing the production of canned and dried apples is likely to exceed $1,500,000.

In Quebec and Ontario, assistance took the form of excluding apples from the Maritime Provinces and British Columbia until January; however, prices did not fall as low in relation to those of previous years as they did in Nova Scotia.

In British Columbia the plan of assistance originally envisaged the purchase of unsold apples to the value of $500,000 at the end of the season, but this scheme was changed to one by which exports from British Columbia were guaranteed as to price. The guaranteed price was 95 cents ($1.05 after the increase in storage costs in January) per box f.o.b. shipping point. The guarantee applied to Fancy grade and was no higher for Extra Fancy, but did not apply to C grade, exports of which were for the most part prohibited. The guarantee applied to the average of each shipper's sales. Many shippers obtained average prices for the season higher than the minimum guarantee. Average price deficiencies by other shippers are not expected to cost the Government more than $100,000.

Throughout Canada the quantity of fresh apples that could be sold was reduced by establishing more rigid grade requirements. No. 3 apples were excluded from both export and inter-Provincial markets; except in Quebec, this also applied to intra-Provincial markets. Moreover, the minimum diameter of the Domestic grade was raised one-fourth inch, and except for Northern Spy, at least 15 percent color was required for all red and red-striped varieties maturing later than Wealthy. In the boxed-apple districts certain sizes of C grade were prohibited from being marketed as fresh apples.

The quota of 75,000 short tons allotted to Canada by the United Kingdom was suballocated to the Provinces of Nova Scotia, Ontario, and British Columbia. Most of the quota was allocated to British Columbia, which did not have the benefit of the subsidized processing scheme.

Domestic consumption of fresh apples was increased by an extensive advertising campaign conducted by the Dominion Government. About $140,000 was spent on this campaign, which appears to have stimulated consumption of fresh apples to the extent of about 1 million bushels (nearly 20 percent). In addition, the Canadian Government authorized the purchase of apples in British Columbia to the value of $100,000 for relief distribution in the drought area of western Canada.

THE BACON BOARD - The Bacon Board was created by Order-in-Council P.C.4076 on December 13, 1939, to administer the Anglo-Canadian Bacon Agreement of November 17, 1939. Preliminary arrangements for establishment of the Board had been worked out by subcommittees of the Agricultural Supplies Board during the period of negotiation of the Agreement. The Bacon Board is under the chairmanship of the Minister of Agriculture for Saskatchewan, the other three members being from the Canadian Meat Packers, the Canadian Pacific Railroad, and the Quebec Department of Agriculture. Associated with the Bacon Board is the Bacon Advisory Committee, composed of eight representatives of producer and packer interests. The Anglo-Canadian Bacon Agreement provides for the weekly shipment of 5,600,000 pounds[8] of cured pork until October 31, 1940, to the United Kingdom for account of the British Ministry of Food, as well as such additional available quantities as may be required. A definite price of $18.01 per 100 pounds[9] was established for Grade A Wiltshire sides, f.o.b. Canadian seaboard, with related prices for other kinds and grades of cured pork.

The chief duties of the Board are to ensure that regular and sufficient supplies will be available for export as required, to store and to regulate the exporting of pork products, to arrange appropriate price differentials between grades and to see that hog prices maintain a fair relationship to the agreed bacon price.

Regulations have been prescribed requiring all packers who are subject to inspection under the Meat and Canned Foods Act to obtain licenses from the Board, which can require any licensed packer to ship or deliver bacon or other pork products of the quantity and quality prescribed by the Agreement. By unanimous consent it can require packers to store pork for future curing and delivery to the British Ministry of Food. It can fix prices for cured pork exports at levels below the prices prescribed in the Agreement, thereby creating a reserve fund with which to meet storage costs and to supplement prices during seasons when production has to be stimulated.

---

[8] Originally the Agreement provided for weekly minimum shipments of 4,480,000 pounds of cured pork, Great Britain to take up to 5,600,000 pounds if adequate supplies were available. The latter figure, it appears, was made the minimum weekly amount early in 1940.

[9] Equivalent to $15.67 per 100 pounds in United States currency as of December 6, 1939, the date on which the Agreement was announced. Since then the Canadian dollar has further depreciated in terms of United States dollars ($1 Canadian $0.78 on June 4, 1940

Initially, the Board has established prices on six grades and on three sizes of each grade, in order to yield to packers, as nearly as possible, a weighted average price of $17.29 instead of $18.01. The 72-cent margin is for the purposes mentioned above. This price scale has enabled uniform prices to be paid for bacon hogs at each of the various marketing centers; for example, $9.00 per 100 pounds live weight at Toronto and $8.60 at Winnipeg. Hog prices fell away from these levels during April, 1940, when the accumulation in cold storage became so excessive that the Board could not take financial responsibility for further additions to storage stocks. Hog prices are not fixed by edict but are the result of the Board's suggestions, taking into account the packing costs of reasonably efficient packers. Such suggestions can be effective only so long as the Board authorizes storage for its own account of such quantities as are in excess of domestic requirements.

Shipments to the United Kingdom have been in excess of the agreed minimum. Exports averaged 6,467,000 pounds weekly during the first 13 weeks of 1940. In mid-January, when storage facilities in the United Kingdom became overcrowded, special arrangements had to be made temporarily for storage in Canada of part of the export quota for the account of the British Ministry of Food.

After the German invasion of Denmark, Canada hoped that the agreed minimum quantity might be increased, but such hopes were not fulfilled. It now appears that Great Britain, in order to conserve foreign exchange and shipping space, will draw upon its accumulated stocks and upon the increased production of Great Britain and Ireland to make up for that part of the lost Danish supply which cannot be covered by stricter food rationing. Therefore, the extraordinarily large supply of pork which has accumulated in storage in Canada and the continuation of large marketings of Canadian hogs are believed to foreshadow lower prices for hogs in Canada despite the Bacon Agreement.

Rapidly increasing imports of fresh pork from the United States were reduced at the end of February, upon the recommendation of the Bacon Board, by the imposition of a quota of 1,626,769 pounds of fresh or frozen pork per month.[10] At the same time action was taken to cancel the "equivalent" clause of the customs regulations, by which it was previously possible for packers to obtain a drawback of 99 percent of the duty paid on imported pork products if an equivalent quantity of cured Canadian pork were exported. Thus by making the duty of 1.25 cents per pound fully effective on American pork imported to replace Canadian pork exported, most of the financial inducement to import American pork was removed. The cancellation of the "equivalent" clause, although favorable to the Bacon Board, was primarily the result of complaints from nonexporting packers that they could not compete on the domestic market with packers who could obtain American pork practically duty-free.

THE WARTIME PRICES AND TRADE BOARD - This Board was appointed by Order-in-Council on September 3, 1939, the day that Great Britain declared war. Its chief function is to protect Canadian consumers from exploitation. It is empowered to take appropriate action to eliminate hoarding and profiteering and to assure an adequate and continuous distribution of the necessities of life at reasonable prices. It has conducted investigations into the distribution and sale of scores of commodities, and has appointed administrators to deal with each of the commodities which have demanded closest attention; for example, sugar, wool, hides and leather, and coal. More recently it has appointed a committee on animal feeds, which is to be on the lookout for unwarranted increases in the cost of feeds. Each administrator assembles information on requirements, negotiates with the United Kingdom Controllers for supplies, and, where limited supplies make it necessary, apportions the supplies among the manufacturers in Canada.

---

[10] Canada's imports of United States fresh, chilled, and frozen pork for consumption totaled 21,956,590 pounds in 1939; 319,505 pounds in 1938; and 3,185 pounds in 1937. the early 1920's, however, imports ranged from 22 million to 46 million pounds annually. See *Foreign Crops and Markets*, March 2, 1940, for tabulation covering 1913-1929

For the most part, the objectives of the Board have been attained by the voluntary cooperation of both industry and the public and by governmental measures to facilitate imports when required. For example, the panic buying of sugar by the public in early September was met by arrangements whereby refiners and large industrial users of sugar voluntarily released large stocks at no increase in price. The dumping duty on refined sugar was temporarily removed, and additional raw sugar requirements were purchased jointly with the Sugar Controller of the United Kingdom at an agreed annual price.

Similarly, Canada's urgent need for additional wool for military purposes, coinciding with Britain's purchase of all of the Australasian wool and large quantities of non-Empire wool, was met by an order prohibiting exportation of wool except by license and by an order on November 24 fixing a maximum price of 45 cents a pound, clean basis, for the crucial grades of crossbred wool. This is the only definite price-fixing action which the Board has taken; and it was revoked after the Canadian wool clip had been marketed on a uniform price basis and after arrangements had been made for obtaining adequate supplies through the British Wool Control at the weighted average price paid by the Wool Control for its various purchases of each grade. With the concurrence of South Africa, the import duty on wool from intermediate tariff countries was removed from January 1 until February 20.

Extensive use has been made of the Royal Canadian Mounted Police and of the Weights and Measures Service in investigating complaints of hoarding or profiteering. Such investigations have served to check any tendency to hoard or profiteer, so that legal prosecutions have been largely avoided. Investigation last September into the situation with respect to butter and dry beans sufficed to modify a rising price tendency without necessitating any further action.

ANGLO CANADIAN EGG PURCHASE AGREEMENT As a result of extended communications between the British and Canadian Governments, the former has undertaken to purchase Canadian fresh and storage eggs this year at a price fixed by the British Ministry of Food, according to an announcement in Ottawa on May 6, 1940. Sales may be made direct from the Canadian exporters through their agents in Great Britain to the Ministry of Food in that country. The agreed prices for Canadian eggs are 13s.9d.[11] per 10 dozen, cost and freight, for either fresh (Grade A), or storage (Grade B) eggs of 15 pounds weight, or 27d. less for eggs of 12 to 15 pounds weight, the latter being rarely exported. No definite quantities and no definite period have been provided, nor will a separate Board be set up.

---

[11] Equivalent to $2.77 United States currency at the controlled exchange rate of £ $4.025.

SIGNIFICANCE OF CANADA'S AGRICULTURAL PROGRAM

Subject to the qualification that military developments in Europe may radically change the conditions that govern Canada's agricultural policy, it now appears that in contrast with 25 years ago, no large expansion of acreage will occur; that no major shifts in land use or livestock production will be made; that agricultural exports will not be greatly expanded during the first two years of war; and that price increases will be moderate. Improvements in the efficiency of production and quality of product are likely to be as significant as changes in the volume of production. Regardless of the degree of participation of the United States in Europe's wartime demand for farm products, the United States is so closely connected economically with Canada that the direction and success of the Canadian agricultural program elicit our keenest interest.

CONTRAST WITH CANADIAN EXPANSION DURING 1914 1918

The expansion of Canadian agriculture that occurred between 1914 and 1918 will not be repeated if present plans are carried out. During that period, settlement of the prairie Provinces was still in progress and was chiefly accountable for the addition, within 4 years, of 18 million acres to the 33.4 million acres of crops which Canada had grown in 1914.

To the 18-million-acre expansion, wheat contributed 7.1, oats 4.7, barley 1.7, and hay 2.7 million acres. During those 4 years wheat land increased from 31 to 34 percent of the total area of crops, acreage planted to other grains remained at 42 percent, and acreage of hay dropped from 24 to 20 percent of the total. Settlement of the areas frequently drought-stricken has also increased the necessity of using a larger part of the farm lands for summer fallow instead of for crops.

Coincident with the 54-percent increase in crop acreage during 1914-1918 livestock numbers increased materially: Numbers of milk cows increased to 3.54 million head (a 32-percent increase); other cattle to 6.51 million (94-percent increase); hogs to 4.29 million (25-percent); sheep to 3.05 million (48-percent), and horses to 3.61 million (22-percent). Judging from the census figures of 1911, poultry numbers also increased to some extent.

Between 1918 and 1939 Canada's population increased by 30 percent. Industrial production increased even more rapidly.

When Canada entered the European war in 1939, its total crop area was 8 million acres larger (15 percent) than in 1918. The wheat area was 9.4 million acres larger (54 percent); whereas acreage planted to other grains was 1.3 million acres less and hay lands were practically unchanged, except as to the kind of hay being grown. Wheat had come to represent 45 percent of the total crop area, other grains 34 percent, and hay 18 percent. Among the less important grain crops, marked reductions had occurred in the acreage of beans, peas, buckwheat, and flaxseed.

Canada's further concentration on wheat growing precluded any great expansion of livestock except in the case of poultry, of which Great Britain now wants less instead of more. Between 1918 and 1939, chickens increased by 37 percent and turkeys by 133 percent. Milk cows and sheep each increased by only 10 percent, while other cattle decreased by 29 percent and horses by 22 percent. Hog numbers were almost exactly the same in 1939 as in 1918, but were in the midst of a short period of rapid increase, which has subsequently brought them close to the all-time high of 1924.

Crop and livestock production was unusually large in 1939. Surpluses of wheat and hogs that at first appeared to be burdensome now provide a great reserve which will probably supply Britain's requirements from Canada for the next year or two, even if a poor season should occur in 1940. Feed grain supplies, including old stocks, were also normal in relation to the number of grain-consuming animal units.

Unless some impelling reason arises, Canada does not want to expand its agricultural enterprises greatly or to disturb seriously the normal balance between them. Little good land remains to be settled, and for several years it has been the policy to assist prairie farmers to restore submarginal croplands to their former status as pasture lands.

The danger of having to deal with large agricultural surpluses at the end of the war also appears to outweigh the danger of wartime scarcity. Britain's program for increasing home production of foodstuffs, together with the fact that standards of living are necessarily reduced during wartime, would seem to indicate small need for Canadian expansion. Moreover, Britain's policy of buying foodstuffs in those countries indicated by currency relations and diplomatic strategy tends to offset partially Canada's advantage of relative proximity.

MINOR IMPORTANCE OF ACREAGE ADJUSTMENTS

Neither of Canada's crops for which export demand has been seriously curtailed - tobacco and apples - occupies much land. Reduction by one-third in the area of flue-cured tobacco represents a withdrawal of only about 23,500 acres, much of which will be rested without planting in 1940. Apple orchards cover only about 200,000 acres; and even if governmental assistance takes the form of compensation for the removal of substandard orchards or varieties of trees, no problem of new uses for surplus land will arise.

For other Canadian farm products, excepting wheat and cheese, consumption in Canada now constitutes so large a part of production that a small increase in output, as required, would produce a large increase in exports. The following figures show, for a recent 2-year period, the percentage of each agricultural product that has been consumed in Canada. It should be noted that in 1939 or 1939-40, it will be found, when consumption figures become available, that the percentage consumed was considerably less because of increased production.

~~~

CANADIAN CONSUMPTION AS A PERCENTAGE OF PRODUCTION[12]

EXPORT PRODUCTS	Percent
Wheat	42
Barley	78
Beans	70
Tobacco	61
Apples	49
Cheese	32
Concentrated milk products	65
Pork	75
Lard	66
IMPORT PRODUCTS	
Corn	272
Flaxseed, including linseed oil	219
Peaches	145
Wool	372
Sugar	855

Only in the case of sugar, wool, corn, and flaxseed is it necessary to import large supplies. Sugar and wool supplies have been assured by the British Control Boards, which have contracted for their purchase in other countries. Canadian imports of corn, including requirements for manufacture or distillation, amount to only about 200,000 tons annually, or about 2 percent of Canadian production of coarse grains; and any deficiency can be readily supplied by the United States. Flaxseed is the only major import item the production of which may have to be expanded, and an increase of only about 300,000 acres would suffice to replace Canadian import requirements. The stocks on hand, domestic production, imports and exports, and apparent domestic consumption of important agricultural products are shown in table 5.

POSSIBLE SHIFTS IN LIVESTOCK PRODUCTION

Hogs and poultry are the only classes of livestock of which production can be expanded or contracted rapidly. A slight decrease in both seems probable within the next year. Hog numbers were overexpanded during 1938-1939 when feeds were cheap; but now, with feed costs higher and with hog marketings in excess of domestic and export requirements, breeding for the production of pork a year hence would logically be restricted.

More Canadian dairy products will probably be required by Great Britain, such as cheese, canned milk, or dried milk. The number of cattle cannot be rapidly increased, but the number of cows being milked can be increased at the expense of beef production. Cheese is the most important of these export products, and the sharp rise in its price in recent months indicates that expansion of production and of exports would probably occur in this product. However, it is to be noted that during the six months October-March, 1939-40, increases had already occurred in exports to the United Kingdom of all forms of dairy products except butter. Exports of butter are unimportant except under abnormal conditions of supply in Canada, and are not likely to become important as long as Great Britain can obtain adequate supplies from Australasia.

[12] Figures shown are for the 2 years ending on the following dates in 1939: for wheat, barley, beans, corn and flaxseed, August 1, for cheese, milk products, pork and lard, January 1; for tobacco July 1, and for apples, April 1
~~~

TABLE 5.-*Estimated supplies of selected Canadian agricultural products for domestic consumption, 1937, 1938, and 1939*
(*Figures in italics are unofficial estimates*)

PRODUCT	UNIT	STOCKS ON HAND			PRODUCTION			IMPORTS		EXPORTS		APPARENT DOMESTIC CONSUMPTION	
		1937	1938	1939	1937	1938	1939	1937-1938	1938-1939	1937-1938	1938-1939	1937-1938	1938-1939
		ON JULY 31			YEAR BEGINNING AUGUST 1								
Wheat and flour	Million bushels	37.4	27.2	99.5	180.2	360.0	489.6	6.1	1.9	93.0	167.0	103.5	122.6
Oats[1]	do.	18.5	22.8	49.2	268.4	371.4	384.4	11.8	3.3	8.6	14.2	267.3	334.1
Barley	do.	4.3	6.4	12.9	83.1	102.2	103.1	0	.0	14.7	16.5	66.3	79.2
Rye	do.	4	1.0	2.0	5.8	11.0	15.3	.1	0	.6	1.8	4.7	8.2
Peas	do.	-	-	-	1.2	1.4	1.3	.2	1	0	0	1.4	1.5
Beans	do	-	-	-	1.3	1.6	1.5	0	.0	.2	.7	1.1	.9
Buckwheat	do.	-	-	-	7.7	7.1	6.8	.0	.0	.3	.3	7.4	6.8
Corn	do	-	-	-	5.4	7.7	8.1	14.1	8.5	.0	0	19.5	16.2
Mixed grains	do	-			*36.1*	39.2	*44.1*	-	-	-	-	36.1	39.2
Flaxseed	do	.5	2	1	.8	1.3	2.2	1.1	.9	.0	0	2.2	2.3
Linseed oil[2]	do.	-	-	-	-	-	-	2	1	.0	0	2	.1
Potatoes	Million hundredweight	-	-	-	42.5	35.9	36.4	2	6	6	.4	42.1	36.1
Turnips	do	-	-	-	36.3	38.2	37.6	-	-	1.2	1.2	35.1	37.0
Hay[3]	Million tons	-	-	-	16.9	17.5	17.1	.1	.0	.0	1	17.0	17.4
Tobacco, re-dried[4]	Million pounds	69.1	74.5	91.8	62.8	88.3	94.7	3.4	4.5	17.6	26.1	43.2	49.4
					YEAR BEGINNING APRIL 1								
Apples, fresh	Million bushels	-	-	-	15.2	15.7	16.4	.3	.3	6.6	8.7	8.9	7.3
Apples, processed[5]	do.	-	-	-	*2.6*	*1.8*	*5.5*	*.4*	*.4*	*1.1*	*.8*	*1.9*	*1.4*
Peaches, fresh	do.	-	-	-	.7	.7	.9	1	.2	-	-	.8	.9
Peaches, processed[5]	do	-	-	-	*.3*	*.3*	*.5*	*.2*	*.2*	*.0*	*.1*	*.5*	*.4*
Strawberries	Million quarts	-	-	-	23.4	24.1	26.3	3.8	3.1	1.1	1.8	26.1	25.4
Honey	Million pounds	-	-	-	23.2	37.8	27.9	1	.0	2.9	4.5	20.4	33.3
Maple products	Million gallons	-	-	-	1.7	3.3	2.6	0	.0	4	.8	1.3	2.5
		ON JANUARY 1			YEAR BEGINNING JANUARY 1								
Butter	Million pounds	36.7	28.5	45.0	355.1	372.0	-	1	5.2	4.1	3.9	359.3	356.8
Cheese	do	24.0	28.6	30.8	131.9	122.4	120.9	1.4	1.4	89.0	81.0	39.7	40.6
Concentrated milk products	do	28.3	28.0	46.7	269.9	307.5	-	7.1	5.2	96.5	99.7	180.8	194.3
Beef	do	23.9	25.3	19.3	615.6	567.5	-	11.8	10.4	17.3	5.7	608.7	578.2
Veal	do	4.5	3.2	4.2	144.5	133.5	-	-	-	-	-	145.8	132.5
Pork	do	49.6	37.3	27.1	756.9	699.0	-	2.1	5.6	219.1	178.5	552.2	536.3
Lard	do	2.3	2.3	2.6	72.8	65.9	-	0	1	30.1	16.8	42.7	48.9
Mutton and lamb	do	7.2	5.3	5.4	63.8	64.7	-	0	4	.3	.2	65.4	64.8
Wool (greasy basis)	do	-	-	-	17.6	17.7	-	60.4	45.1	5.1	4.4	72.9	58.4
Poultry	do	16.2	10.4	12.2	207.1	206.2	-	-	-	11.1	3.5	201.8	200.9
Eggs	Million dozen	4.7	4.7	3.8	239.9	233.9	-	.6	.5	1.6	1.8	238.9	233.5
Sugar, refined	Million pounds	-	-	-	120.4	143.0	*165.0*	912.7	910.5	2.5	3.3	1030.6	1050.2

---

[1] Including oatmeal and rolled oats.

[2] Flaxseed equivalent (18⅔ pounds per bushel of flaxseed).

[3] Including grain hay, clover, and alfalfa.

[4] Stocks June 30, year beginning July 1.

[5] Fresh equivalent.

Sources: *Monthly Bulletin of Agricultural Statistics*, September 1939, p. 317; February 1940, pp. 73 and 80-82. *Report on the Sugar Industry in Canada, 1939.* Dominion Bureau of Statistics.
Crop production data as subsequently revised in January issue.
Tobacco data assembled from official sources.

EXPORTS FROM CANADA, OCTOBER TO MARCH -

	1938-39 *Million pounds*	1939-40 *Million pounds*
Cheese	32.3	45.8
Milk, powdered	8.9	17.1
Milk, evaporated	6.2	7.6
Butter	7.4	.1

POSSIBILITY OF INCREASED EFFICIENCY IN PRODUCTION

Under the stimulus of wartime fervor and administrative decrees, greater progress than usual may reasonably be expected toward efficiency of production and improvement of quality. Remembering the quick shift in Great Britain from consumption of inferior Canadian bacon to the purchase of high-quality Danish bacon which occurred after the World War, great emphasis is being placed on the attainment of high quality in present wartime shipments, so that Canada's larger share of the British bacon market may be made permanent. Similarly, Canada cannot be expected to subsidize the production of inferior crops of low-grade varieties of apples. The present period of curtailed demand seems to be a good opportunity for elimination of this crop inferiority, so that at the end of the war Canada's reputation as a producer of high-quality apples may be enhanced.

In the case of tobacco also, it is the inferior lands, producing low yields or low quality, which are most likely to be withdrawn from production. The prohibition against the manufacture and sale of unrecommended fertilizer formulas will tend to lower manufacturing costs and to increase yields. Finally, the hundreds of local committees through which the Agricultural Supplies Board is conducting its educational work may be used as agencies for extending the use of improved methods of crop and livestock production.

PRICE TRENDS

Price stabilization efforts are most difficult to appraise, since it is impossible to know what would have happened even without them.

From July 1937 until August 1939, wholesale prices of both agricultural and nonagricultural products declined steadily. Declaration of war at the beginning of September and the devaluation of Canadian and British currency - by 10 and 20 percent, respectively - were promptly followed by a rise of about 10 percent in the prices of each of these two kinds of commodities. More than average increases occurred in prices of wheat, beans, and cheese (all export products). Sugar prices, to which the Wartime Prices and Trade Board gave so much attention, rose by only 10 percent and have remained unchanged since October.

Table 6 shows that during the first six months of the war, since the initial rise in September, the farm-products price index rose another 7.1 points (11 percent) and the all-commodities index increased further by 5 points (6 percent). By March 1940, as compared with August 1939, the percentage price increases of the items most subject to fluctuation had been considerable: wheat and flaxseed each increased 58 percent; dry beans 71; bran 40; bacon hogs 15; butter 29; cheese 60; and wool 77 percent. Sugar advanced only 9 percent. None of these prices can be said to have much more than regained the levels, generally considered optimum, which were temporarily reached during the price recovery of 1937.

TABLE 6.-*Representative wholesale prices in Canada, 1937, 1939, and 1940*

ITEM	UNIT	JULY 1937	JULY 1939	AUGUST 1939	SEPTEMBER 1939	MARCH 1940
All commodities	Index	87.5	72.6	72.4	78.2	83.2
Farm products	Index	92.5	62.7	58.4	64.2	71.3
Wheat	Cents per bushel	145.6	55.3	54.9	73.9	87.0
Flaxseed	do.	180.0	138.6	130.0	166.1	205.1
Dry beans	do.	233.0	186.4	173.1	237.0	296.0
Bran	Dollars per ton	27.25	19.90	18.63	25.75	26.00
Hogs, bacon	Cents per pound	10.24	9.34	7.85	8.60	9.03
Butter	do.	25.7	21.9	21.5	26.1	27.7
Cheese	do.	14.5	12.4	11.4	13.4	18.3
Wool	do.	32.0	17.5	17.5	21.4	31.0
Sugar	do.	5.085	5.085	5.085	5.085	5.56

Subsequent price changes will probably be moderate because of British control of prices and the effective use of the power to prevent hoarding or profiteering in Canada vested in the Wartime Prices and Trade Board. Only in the event of serious reverses not now foreseen in the shipping or currency situations is a highly stimulative price level to be expected for Canadian farm products.

The currency situation requires special attention. Most of the wartime dislocations in Canadian agriculture and in the marketing of Canadian agricultural products seem to have been directly or indirectly associated with the currency problem. This arises from the fact that the principal belligerents associated with Canada are in the "sterling" group of countries; whereas Canada, although part of the British Empire, is in the "dollar" group.

If Canada attempts to supply any large part of its products for overseas on credit, without receiving imports in compensation, the foreign value of the Canadian dollar would tend to depreciate. A material widening of the difference between the foreign value and the officially established rate of the Canadian dollar would tend to induce further depreciation of the official rate. Such action would immediately affect the value of farm products which are important in Canada's international trade, but for other farm products the stimulating effect on prices would be delayed. Such a development, though apparently not imminent, would make more difficult Canada's effort to stabilize prices both absolutely and in relation to one another.

POLICY OF EXPORT SUBSIDIES

British price policies also have significantly affected those of Canada. Britain's policy is to keep down prices to consumers even if it means losses to the

British Ministry of Food which must be covered by general taxation or loans. This policy compels the British Government to be a hard bargainer for its purchases in Canada. It seems to be Canada's policy to sell its products to the British even if the best price obtainable is so low that subsidy payments have to be made to Canadian producers in order to sustain production. This policy has already been applied in the case of apples, and it is expected that it may also have to be followed for some other Canadian farm products.

CHANGE IN THE VALUE OF FOREIGN AGRICULTURAL TRADE

With respect to Canada's foreign trade balance and the related question of foreign exchange, it is significant to note that in 1939 Canada's exports of Canadian merchandise, excluding gold, amounted to 925 million dollars, a gain of 87 million over 1938. Canada's imports for consumption in 1939 were valued at 751 million dollars, a gain of 74 million. Agricultural exports in both years comprised about 30 percent of the value of total exports, and agricultural imports about 22 percent. Exports of grains and their products, chiefly wheat and flour, amounted to 155 million dollars; while those of cattle, bacon, cheese, and other animal products were valued at 80 million dollars, of a total value for agricultural exports of 285 million. Of the agricultural imports, totaling 165 million dollars, the major items were fruits, sugar, rubber, coffee, and tea. Only 20 million dollars represented animal products, of which wool, hides, and meats were important items.

Canada's foreign trade in agricultural products in relation to its total foreign trade may be illustrated in general by the following figures for the year 1939.

	EXPORTS *Millions of dollars*
Vegetable products	204.2
Animal products	80.4
Total agricultural (chiefly to United Kingdom)	284.6
Total merchandise	924.9

	IMPORTS *Millions of dollars*
Vegetable products (chiefly fruits, sugar, rubber, coffee, and tea)	144.6
Animal products (chiefly wool, hides, and meats)	20.4
Total agricultural (42 percent from the United States)	165.0
Total merchandise	751.1

The United Kingdom was the principal market for all important farm products except cattle, sugar, and seeds, which were exported chiefly to the United States. The United Kingdom is the only market in which Canada can expect to obtain any material increase in its foreign sales of agricultural products, and only wheat and flour could conceivably be increased enough to make any great difference in the total value of Canadian agricultural exports. Statistics showing large exports of wheat to the United States are illusory; such wheat is chiefly for transit shipment through United States ports.

If Canada should find it necessary to curtail imports in order to correct an adverse trade balance, curtailment would not be expected in its imports of cotton or other raw materials needed for its manufacturing industries. Instead, it might be expected first in alcoholic beverages and sugar, which are obtained chiefly from the United Kingdom and British Empire countries. In such cases, as in the case of tea and coffee, the United States would not suffer from import restrictions because it is not an important source of supplies; however, if continued difficulty is encountered in the marketing of Canada's fruits and vegetables, some curtailment of imports of similar products from the United States may occur. In 1939 Canadian imports of fruits, nuts, and vegetables, fresh or processed, - nearly all of which were supplied by the United States - were valued at about 35 million dollars.

CONCLUSIONS

The United States has not been seriously affected by Canada's wartime agricultural program as distinct from that of the United Kingdom. Since moderation is the keynote for both production and prices, Canada's program distinctly favors a continuation of fairly normal trade during the war and an easy post-war return to normalcy.

Fiber flax, a minor crop, provides the only instance of government-sponsored expansion in production, and the fixed export prices of cured pork and eggs represent the only cases of such export price control. All domestic prices are open-market prices, supplemented by subsidy payments in the case of a few low-priced products, as in the case of wheat under pre-war policy. Canada's fresh pork imports from the United States have been restricted because of British restrictions against excessive bacon imports from Canada; but even in this isolated case, Canadian policy has not curtailed the pre-war trade between Canada and the United States.

Other import restrictions may yet be applied if British purchases of Canadian farm products are seriously curtailed, but no such extension of restrictions is imminent. In general, it seems certain that subsequent developments in Canada's wartime agricultural policy will be governed largely by considerations of national finance.

§

JAPAN'S FOOD SELF-SUFFICIENCY . . . . .

By W. Ladejinsky*

For the first time in more than two decades, Japan has been threatened with a shortage of rice, the country's main article of food. The difficulty is chiefly due to the failure of the 1939-40 rice crop of Chosen, one of Japan's principal bread baskets. The military aggression of Japan in China, now nearly three years old, is a factor of relatively minor importance inso far as the present food problem is concerned. Barring crop failures, Japan, unlike the belligerent countries in Europe, is at present practically self-sufficient in food supplies, and is able to satisfy its food requirements from Empire sources; however, if the population of Japan in the next two decades or so should increase at the present rate, dependence upon foreign imports for a considerable share of total food requirements is likely to result Such a future development need not indicate any weakening in the economic fabric of Japan, providing the country continues to expand along the lines of industrialization and expansion of foreign trade

The outbreak of war in Europe caused the belligerent countries to institute very elaborate food-rationing systems in order to utilize most effectively the available food resources. Recourse to such measures is necessitated by three important considerations. First, neither Great Britain nor Germany is self-sufficient in food supplies; Great Britain normally produces only 35 percent and Germany about 80 percent of their food requirements. Second, in time of war the ability to import the requisite volume of foodstuffs is at best uncertain. Third, food requirements and costs in many countries tend to rise with the increase in armed forces; hence the compelling need of food rationing on the part of the European belligerents.

The situation in Japan presents a striking contrast to that in Europe. Despite the war which Japan has been waging in China for nearly 3 years, food rationing is as yet unknown to the Japanese. Recently there has been considerable discussion concerning the advisability of rationing some of the food products, but to date nothing very concrete has been done about it. The explanation may be found partly in the fact that considerable numbers of the Japanese army in China live off the Chinese soil; a more important reason, however, is that Japan is normally adequately supplied with the requisite volume of food. Japan's colonies, Chosen (Korea) and Taiwan (Formosa), play an important role in insuring Japan proper with foodstuffs produced in insufficient quantities. Failure of the rice crop in one of the colonies may create a serious food problem, as illustrated by the crop failure in Chosen in the fall of 1939-40.

---

* Associate Agricultural Economist, Office of Foreign Agricultural Relations.

Should Japan fail to secure the requisite volume of rice through foreign imports, rationing might become necessary. Normally, however, the agricultural output of Japan proper shows that the greater part of what it consumes is derived from home production. Furthermore, considering the close ties binding Japan and its colonies and the relatively short distances separating them, it may be stated that for all practical purposes Japan has attained self-sufficiency in food requirements.

AGRICULTURAL PRODUCTION

EFFECTS OF POPULATION GROWTH

A number of important elements enter into any consideration of the food problem of Japan, chief among which is the growth of population in relation to agricultural output. In the course of the past 80 years the population of Japan has increased from 30 million to over 70 million. The annual increase in recent years amounts to almost a million people. Yet to date, this yearly increase has not created any serious food difficulties, principally because there has been taking place at the same time a marked expansion in agricultural output. Two factors have made this possible. First, during the period under consideration the crop area was enlarged by some 4 million acres (36 percent) - a significant increase in view of the total cultivated area of Japan. In the second place, the expansion of the crop area has been accompanied by more intensive farming, resulting in a significant increase in the yield per unit of land.

Until about the end of the nineteenth century the combination of these two factors sufficed to enable domestic production to meet the food requirements of an increasing population. There was, in fact, even an exportable surplus. However, since the turn of the century Japan has changed from a rice-exporting to a rice-importing country. The shift cannot be attributed to a decline in output in Japan proper, since domestic production has been steadily expanding, but is due chiefly to the fact that the increased output of rice in Japan was outstripped by the growth of population, especially urban, and the expanding volume of per-capita consumption; hence the dependence of Japan proper upon colonial rice for some 18 percent of its requirements.

VOLUME OF OUTPUT

These general observations are supported by a review of the physical volume of domestic food production and net imports of food into Japan.

In recent years the cultivated area of Japan was estimated at about 15 million acres, or 16 percent of the total area of Japan proper. From 80 to 85 percent of the cropland is planted to cereals; the remainder is distributed among legumes, tubers and roots, industrial crops, vegetables, fruits, and tea. At this point it might be mentioned that the predominance of cereals is a feature that characterizes the food habits not only of Japan, but of all Far Eastern countries. It has been noted in this connection that in the Far East 70 to 80 percent of the total calories consumed are obtained from cereals. This is ". . . about twice that in Western diets in which as a rule only one third or even less is supplied by cereals and cereal products."[1]

RICE, THE KEY TO JAPAN'S FOOD PROBLEM

STATUS AND HISTORY

Among cereal crops Japan grows rice, wheat, barley, oats, millet, buckwheat, and maize; but the first is by far the most important food crop. Of the 12.5 million acres in cereals, rice alone accounted for 7.8 million acres, or 63 percent of the total. It is used at practically every meal, and although other grains are also consumed, they supplement rather than replace rice.

Until the second half of the nineteenth century rice was more than a food commodity: it was the very basis of the country's economy. To this day, rice, as Japan's "staff of live," is still of paramount importance. The solution of the food problem is inextricably bound up with an increase in the supply of rice to keep pace with a growing population. For this reason the policies of the Japanese Government concerning the maintenance of sufficient food supplies were mainly concentrated on increasing the output of rice. Has Japan succeeded in this task?

Shortly after Japan embarked on its course of industrialization in the latter part of the nineteenth century, the country's rice area was estimated at 6,240,000 acres. By the end of the nineteenth century it had increased to 7,000,000 acres, and during the 1930's it averaged 7,860,000 acres. Thus in the course of half a century the rice crop area of Japan increased by 1,620,000 acres, or 26 percent. In the past two decades, however, the area planted to rice increased by only 3 percent, while more recently the rice area has remained practically stationary. The great efforts to extend the total area under cultivation have met with little success in the past two or three decades. The utilization of land in Japan is already so highly developed that "not only the hillsides, but in some places even the mountain summits" are made to yield crops. The topography of the country being generally steep and mountainous, there is at present only a small undeveloped area suitable for cultivation.

Together with the expansion of the rice area occurred a more intensive and better cultivation of the land and skillful utilization of chemical fertilizers. Rice production increased from an annual average of 271 million bushels (rough) in 1878-1882 to 593 million bushels in 1935-1939; and the yield per acre during the same period increased from 43 to 75 bushels, or 74 percent. In recent years, however, the increase in rice yield has been relatively slight, and it is not likely that in the future the yield per acre will be increased at as rapid a pace as in the past. The explanation lies in the fact that ". . . Japan has just about reached the point where the returns on her agricultural efforts will begin to decrease irrespective of any added endeavors she may make to increase her production."[2]

---

[1] Lindstedt, H., "Food Consumption Habits in the Far East," *Monthly Bulletin of Agricultural Economics and Sociology,* (International Institute of Agriculture) Sept. 1938, p. 408 E.

[2] Nasu, Shiroshi, "The Problem of Population and Food Supply in Japan," *Problems of the Pacific,* Section 15, 1928, p. 343.

PROBLEM OF SUPPLY

The greatly augmented production has not been sufficient to take care of the rice requirements of the growing population and of the increase in per-capita consumption from 278 pounds (average of four 5-year periods from 1878 to 1897[3]) to a high of 355 pounds during 1923-1927. In the years following, consumption has declined to some extent (see table 1).

TABLE 1.–*Japanese rice production, 1939, with comparisons*

PERIOD	AREA	PRODUCTION	YIELD PER ACRE
	1,000 acres	*1,000 bushels*	*Bushels*
Average:			
1878-1882	6,244	271,773	43
1888-1892	6,708	353,427	53
1898-1902	6,950	386,350	55
1908-1912	7,247	400,082	63
1921-1925	7,704	524,217	68
1926-1930	7,828	553,754	71
1931	7,961	502,176	63
1932	7,982	549,241	69
1933	7,778	644,183	83
1934	7,775	471,480	61
1935	7,852	522,565	66
1936	7,859	612,477	78
1937	7,877	603,173	76
1938	7,893	599,072	75
1939	7,823	627,521	80

Compiled from official sources.

The deficiency of rice from domestic sources became apparent in the late 1890's, when Japan became an importer rather than an exporter of rice. From 1877 to 1896 the average production of 309 million bushels was not only sufficient for the country's needs, but left a small exportable surplus. Since then Japan has become increasingly dependent upon imported rice. During the period 1931-1935, it may be observed that with the exception of 1933, when Japan enjoyed a record-breaking crop, domestic production fell short of supplying about 14 million people with their annual needs.

Certain features concerning rice consumption in Japan have complicated the country's food problem. Foremost among these is the strong preference of the Japanese for domestic rice. The home-grown cereal is so different in taste, although not necessarily in quality, that it differs greatly from other kinds of rice produced in foreign countries. One authority[4] has pointed out that:

---

[3] Swen, Wen Yuh, and Alsberg, Carl L., "Japan as a Producer and Importer of Wheat," *Wheat Studies of the Food Research Institute*, Vol. VI, No. 8, July 1930, table XI, p. 377.

[4] Ishii, Ryoichii, *Population Pressure and Economic Life in Japan*, 1937, pp. 168-169.

> "For this reason the rice market of Japan has been rather rigidly protected for the home-grown product; this has kept the price at a high level, thereby making it possible to increase . . . production [per acre] regardless of the ensuing increase in cost. Consequently, both the . . . [average production per acre] and the cost of production of rice in Japan are without parallel among major rice-producing countries. Before the depression of 1930 the average cost of production in Japan was 37.00 yen per koku; this was from 50 to 100 per cent above the [cost of] production . . . in China and in the United States. Even in 1918, the year in which the rice riots spread throughout Japan, the average price . . . of . . . imported . . . [rice] remained at considerable variance with the quotations of Japanese rice."

Notwithstanding the preference for domestic rice, the volume of production since the 1890's could not keep pace with the consumption requirements of the growing population. Japan had to make good the shortage by imports. At the turn of the century annual net imports of rice amounted to about 400 million pounds. Poor crops during the years 1902-1906 raised this figure to 1,405 million pounds. Imports declined in the course of the following decade, but have mounted rapidly since that time. During 1932-1936 net annual imports averaged 3,925 million pounds, or 17 percent of the total volume of rice consumed. As the imports grew in volume there came a shift in the sources from which they were drawn; rice from French Indochina, British India, Thailand (Siam), and the United States gradually gave way to the colonial rice of Chosen and Taiwan. In recent years these two colonies have accounted for 97 percent of the total imports.

From the point of view of Japan's food requirements, the availability of colonial rice is of utmost importance. It is a result of long, strenuous efforts on the part of Japan to assure the country not only of a sufficient supply of rice, but also of rice that suits the taste of the Japanese people. The nature of this problem and the methods followed were stated in a publication of the Government General of Chosen as follows:[5]

> "In our Japanese food supply, rice, the principal article of consumption, tends to be short year after year. As a step toward the solution of this problem, the Imperial Government is doing all it can to increase rice production - by effective enforcement of the Land Readjustment Law, by promulgation of the Reclamation Law, and by trying to improve agricultural techniques in every way. In spite of all these efforts, the increase in rice production clearly does not suffice to meet the demand in the near future. In view of these facts, and in order not only to help in solving the Empire's food problem but specifically also to develop the economy of Korea, the Government General of Chosen planned in 1919 to have about 1,960,000 acres of paddy field reclaimed and improved within thirty years. As a first instalment, the Government is trying to complete such work on about a million acres in fifteen years. In this way, and counting also on an increase of the yield [per unit of land] by improved techniques of production, approximately 45,630,000 bushels of rice are to be added to the total annual output in that period. This is the so-called 'More Rice' project in Korea which has been under way since 1920."

From the point of view of solving the rice problem of Japan, the measures adopted by the Japanese in Chosen have been eminently successful, as is proven by the increase of the rice output in Chosen and Taiwan and the ever-growing volume of rice imported from those colonies. This development, of course, has had an adverse effect upon the fortunes of the Japanese farmers. The following statement throws light upon the peculiar relationship between colonial and Japanese rice:[6]

---

[5] Government-General of Chosen, *The Land Amelioration Undertaking in Korea,* Nov. 1928, p. 4. Quoted by Hoon K. Lee in *Land Utilization and Rural Economy in Korea,* 1936, p. 123.

[6] Ishii, Ryoichii, *op. cit.*, p. 171.

> "Although the colonies hold the key to the solution of the problem of food supply in Japan, at the moment products of these colonies have depressed Japanese agriculture. To illustrate: since Chosenese rice is ever ready to fill the rice markets in Japan, a poor agricultural season in Japan cannot be compensated by a high price. On the other hand, a good crop may, and frequently does ruin the farmer, since this results in a sharp decline in the price. Nevertheless, Japan proper cannot supply her own need; she must rely on colonial products for a sufficient food supply."

Whatever the effects upon the Japanese rice producer, however, virtual self-sufficiency in this basic food crop has resulted from the supplying, by domestic producers and the colonies, of 97 percent of all the rice consumed in Japan.

RECENT DEVELOPMENTS

Although this article is concerned primarily with Japan's rice problem in its larger aspects, the current Japanese crop situation is sufficiently serious to warrant some attention. The rice year 1939-40 is the most unfavorable that the Japanese Empire has had in two decades, and the country is confronted with a probable shortage of rice during the current season. The official price of rice has been set at 46 yen per koku ($3.43 per 100 pounds), the highest in 30 years; the average price of rice during 1929-1938 was only 27 yen per koku. The Government is engaged also in the distribution of rice, and in purchasing rice abroad on a large scale, and has authorized local authorities to requisition rice.

An unprecedented drought in Chosen, a dry summer in certain sections of Japan, and an overabundance of rainfall in Taiwan are at the bottom of the difficulty. A poor crop reduced Chosen's rice exports to Japan from 3.1 billion pounds in 1937-38 to 1.8 billion pounds in 1938-39, the smallest quantity shipped since 1930. Exports from Taiwan amounted to 1.2 billion pounds, the lowest since 1932. Largely for this reason, Japan began the 1939-40 season (November 1) with a carry-over of only 1,276 million pounds, the smallest since 1918. Some trade sources even hold that the carry-over was substantially below the Government figure.

Official estimates place the 1939 rice crop of Japan proper at 627 million bushels, as against 599 in 1938, an increase of 5 percent. This may be too optimistic a figure, judging by reliable unofficial sources. Even assuming, however, that the crop is as large as officially estimated, the prospect of a shortage still remains serious in consequence of the disastrous crop failure in Chosen, where in 1939 a total of 130 million bushels was harvested - 40 percent less than in the previous year. The significance of this crop failure is revealed by the fact that Chosen's 1939 harvest was 17 percent smaller than its own consumption the preceding year. There would seem to be, therefore, no surplus of rice left for export to Japan. Japanese officials, however, have established a rice distribution system for Chosen, which, if carried out, would result in the export of 400 million pounds of rice to Japan. In consequence, the shortage of rice in Chosen would be increased by 41 million bushels, thereby reducing the volume of Chosen's consumption from 160 million (1938) to 119 million bushels, or by 25 percent. The 1939 Taiwan crop was the smallest in 5 years, amounting to 33 million bushels compared with 39 million in 1938. Rice exports from Taiwan to Japan this season, therefore, are not expected to be much above the average and can hardly offset the shortage from other sources.

TABLE 2.--*Japanese rice situation, 1938-39, with comparisons*

YEAR	CARRY-OVER BEGINNING OF YEAR	PRODUCTION	IMPORTS				TOTAL SUPPLY	TOTAL EXPORTS	CARRY-OVER AT END OF YEAR	CONSUMPTION		POPULATION
			FOREIGN	CHOSEN	TAIWAN	TOTAL				TOTAL	PER CAPITA	
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Pounds*	*Thousands*
Average:												
1902-03 to 1906-07	-	13,794	1,312	-	189	1,501	15,281	96	-	15,185	324	46,798
1907-08 to 1911-12	-	15,819	513	76	275	834	16,653	123	-	16,529	334	49,477
1912-13 to 1916-17	1,640	17,121	447	359	256	1,063	19,457	217	1,731	17,856	337	53,010
1917-18 to 1921-22	1,550	18,125	908	768	304	1,981	21,655	135	1,727	19,793	354	55,882
1922-23	2,295	19,067	509	1,085	356	1,950	23,313	222	2,133	20,958	362	57,868
1923-24	2,133	17,418	1,045	1,429	521	2,995	22,546	245	1,637	20,665	352	58,620
1924-25	1,637	17,960	1,614	1,391	792	3,798	23,395	604	1,728	21,063	354	59,428
1925-26	1,728	18,756	673	1,638	687	2,997	23,482	175	1,875	21,432	355	60,341
1926-27	1,875	17,465	1,297	1,855	829	3,980	23,320	409	1,811	21,100	344	61,316
Average	1,933	18,133	1,027	1,479	637	3,144	23,211	331	1,837	21,043	353	59,514
1927-28	1,811	19,510	551	2,221	764	3,536	24,857	316	2,463	22,078	355	62,224
1928-29	2,463	18,945	401	1,690	708	2,799	24,207	175	2,208	21,824	346	63,138
1929-30	2,208	18,710	392	1,623	687	2,702	23,621	175	1,797	21,648	338	63,967
1930-31	1,797	21,009	261	2,511	848	3,620	26,426	628	2,871	22,927	354	64,725
1931-32	2,871	17,346	309	2,261	1,074	3,645	23,863	213	2,798	20,821	319	65,366
Average	2,230	19,104	383	2,061	816	3,260	24,595	301	2,427	21,859	342	63,884
1932-33	2,798	18,972	314	2,366	1,325	4,005	25,775	196	2,830	22,749	343	66,296
1933-34	2,830	22,251	54	2,813	1,610	4,476	29,557	283	5,162	24,112	359	67,238
1934-35	5,162	16,286	22	2,650	1,417	4,090	25,538	256	3,121	22,161	325	68,194
1935-36	3,121	18,050	129	2,818	1,496	4,443	25,614	176	2,515	22,923	331	69,254
1936-37	2,515	21,155	90	2,116	1,520	3,726	27,396	203	2,360	24,833	353	70,258
Average	3,825	19,343	122	2,552	1,473	4,148	26,776	223	3,197	23,355	342	68,248
1937-38	2,360	20,835	47	3,188	1,545	4,780	27,975	184	2,668	25,123	353	71,258
1938-39	2,668	20,693	49	1,787	1,236	3,072	26,433	239	1,276	24,918	345	72,222

Compiled from official sources

In view of this situation, Japan is attempting to reduce rice consumption during 1939-1940 to about 24 billion pounds, as compared with average requirements of 25 billion pounds in the previous 2 years, through a rigid enforcement of restrictions on rice polishing[7] and on the use of rice for brewing purposes. Notwithstanding the expected economy of about 1 billion pounds, Japan must import some 3 billion pounds of rice. Substantial quantities have already been purchased from Thailand (Siam), and it is reported that a considerable volume is being secured from central China despite the rice shortage in many parts of that country.

Statements have been issued from official sources to the effect that Japan is not confronted with a serious rice shortage - even though Chosen is. The crop failure cannot be denied, but the blame is shifted to faulty distribution of available resources, failure on the part of the farmers to sell rice in the hope of receiving higher prices, etc. Japan is bending every effort to insure a larger output in the coming year, for a similar failure in 1940 would be a major disaster and would almost certainly lead to the rationing of consumption. Meanwhile, it is clear that the current rice difficulties are due to an "Act of God." A good crop would again make the Japanese Empire self-sufficient in rice.

FUTURE OUTLOOK

The question has often been raised in Japan as to whether in the years to come the country will be able to maintain its present position of self-sufficiency. Barring poor crops, the problem is not likely to arise within the next 5 years. The situation, however, is not so reassuring when a longer period is considered, of, say, two decades, assuming at the same time a continuation of the population growth at approximately the present rate. A number of estimates of the future growth of population in Japan have been made, most of which indicate that by 1960 Japan will have attained a minimum population of 90 million and a maximum of about 100 million. For the purpose of this discussion it is, perhaps, safest to accept the minimum. With per-capita consumption remaining at the level of the 1930's, total annual rice requirements will have reached 31 billion pounds as against an average of 25 billion pounds in 1937 and 1938. Is it within the means of the Japanese Empire to increase the rice output by 6 billion pounds?

This question can best be answered by a survey of the attempts made in the past two decades to expand rice acreage. An investigation in 1918 regarding the prospects for enlarging the land under cultivation revealed that Japan had 4,979,000 acres suitable for cultivation but not yet utilized.[8] The island of Hokkaido figures prominently in this scheme, its share in the cultivable land having been set at 39 percent. In the total area, 1,386,000 acres were classified as rice fields. Chosen was regarded as the next most important source of rice production. According to a study published by the Government of Chosen in 1927, an area of nearly 2 million acres could be converted into rice fields;[9] half of this acreage was included in a plan to augment production. Taiwan, too, was to increase its rice plantings by some 395,000 acres. Another element in the scheme was an expected increase of 25 percent in yield per acre. The combination of all these factors was to add to the available supply approximately 300 million bushels, or about half the annual production in the past 5 years.

---

[7] Rice will be polished only 70 percent.

[8] Nasu Shiroshi. *Land Utilization in Japan*. Institute of Pacific Relations 1929 p 115

[9] *Ibid.*, p 231.

The expansion of the rice area after 1918 has been offset by a simultaneous contraction of acreage for uses other than agricultural. This helps to explain why the total cultivated land in Japan during 1918-1936 shows a net increase of only 143,000 acres. It should be noted that during this period the rice area increased by 279,000 acres; this was due in part, however, to a decline in acreage planted to cereals other than wheat. The process of substituting rice for other crops was carried on only during the first few years of the period here considered. During the past decade the acreage planted to rice has changed little.

A study of the problem of land utilization in Japan led a Japanese authority to the conclusion that ". . . the exploitation of arable land in Japan Proper, except for Hokkaido, has already reached . . . [its limit,] leaving little room for further reclamation even with the very expensive and painstaking assistance from the Government."[10] The decade following this statement has amply justified it. As to the potentialities of Hokkaido, the question is still moot, for the time being, at any rate. Judging by net accretion of cultivated land, it is not unreasonable to state that Hokkaido has contributed little to the problem of insuring Japan's future rice supply.

Chosen. In the course of the years 1918-1936 Chosen succeeded in expanding its cultivated area by 388,000 acres. The possibilities for further expansion are limited. The basic feature of Chosen's agriculture is scarcity of arable land in relation to the growing farm population. Most of the expansion since the country was annexed by Japan took place during the second decade of the present century. In subsequent years the increase has been less rapid. At present most of the land that can be cropped has been put to use.

Of late, Japanese plans to increase the agricultural output of Chosen stress improvement of the land already under cultivation, rather than addition of new land. The 1939 crop failure in Chosen brought forth a variety of schemes for prevention of such disasters in the future. One of these[11]

> ". . . calls for the expenditure of approximately Yen 200,000,000 over a six [year] period (Yen 60,000,000 of which may be requested in the 1940-41 budget) to subsidize improvements in methods of cultivation, supply of fertilizers, purchase of farm implements and land improvements which do not require the consumption of large amounts of materials. By this plan it is hoped that normal annual rice production may be increased by 6,800,000 *koku* [62 million bushels] or to approximately 30,000,000 *koku* [273 million bushels] a year by 1946."

Even assuming that the plan can be carried out, however, it is questionable whether the entire increase in production can be made available to Japan. According to the source just quoted, ". . . it is not thought that the annual normal surplus available for export will be increased by more than 4,000,000 *koku* [36 million bushels] unless the present measures for forcing a decrease in *per-capita* consumption are continued."[12]

---

[10] Ibid., p. 39.

[11] Johnson J. [illegible], American Vice Consul at Keijo, Chosen, in a report entitled *Chosen and Failure of 1939 Rice Crop*. Jan. 4, 1940, pp. 6/7.

Taiwan. Taiwan came nearest to carrying out the expansion plan. Between 1926 and 1935 the land under rice has increased by 237,000 acres, or 60 percent of the acreage the Government of Taiwan expected to put under cultivation in order to help Japan solve its food problem. Taiwan, however, is of less importance than Chosen as a source of Japan's rice supplies, because, first, of limited prospects for further expansion of land under cultivation, and second, because the island is the only large subtropical part of the Japanese Empire. The latter reason explains why for some years farmers of Taiwan have been urged to enlarge the specialty crops acreage, while maintaining the rice area at a fairly constant level.

In 1933 there was prepared a 10-year plan for the agricultural expansion of Taiwan. The rice area was to be augmented by not more than 100,000 acres, but output was to be raised to 40 million bushels by 1948, or 25 percent above that of 1937. Reliance was placed principally on better farming methods, fertilization, irrigation, and other methods of increasing productivity. This method of approach has been selected because of the fact that Taiwan lacks the acreage necessary for the simultaneous expansion of rice and sugarcane production.

Any expansion of acreage under rice, according to one authority,[13] depends on:

> ". . . the possible future relations between the rice growing and the sugar industry Formosa [Taiwan] is generally considered particularly fit for the cultivation of sugar cane and the island is almost the only territory that can be used for this purpose in the Empire of Japan. The extent of the improvement in rice farms and crops will therefore depend upon the importance attached to the planting of sugar cane in the future.
>
> "Because of all these conditions, the planted area of rice in Formosa cannot be much increased. . ."

This statement made a decade ago still holds true, and it is still not certain that Taiwan is in a position to carry out the rice scheme without upsetting the other chief features of its agricultural program.

In conclusion it may be stated that during the past two decades the rice area of the Japanese Empire increased by about 900,000 acres, or approximately one-fourth of the acreage called for by the original Japanese plans. The really significant fact from the point of view of potential rice supplies is that most of the expansion took place prior to the late 1920's. This is true of Japan proper, and somewhat the same situation prevailed in Chosen; namely, a large increase prior to the 1920's, a much slower expansion in the years immediately following, and more recently, a downward rather than an upward trend.

---

[12] *Ibid.*, p. 7. The latter part of the statement refers to a regulation whereby all rice sold at retail must contain 30 percent of such cereals as millet, kaoliang, barley, and soybeans.

[13] Nasu Shiroshi, *op. cit.*, p. 239.

In Taiwan, on the other hand, the rice acreage has increased during the past decade, but there is evidence that relatively little expansion can be expected in the future. It is fairly clear that prospects are not promising for the addition in the next two decades of 2 million acres planted to rice.

Inability to enlarge the Empire's rice area sufficiently may be partly offset by higher yields. This would be possible only as a result of raising still further the already high cost of rice production. The effect of high food costs cannot but be detrimental to the standard of living of the majority of the Japanese people.

Equally adverse would be the effect upon Japan's industrial economy, the main strength of which lies in the ability to produce at a relatively low cost, thereby enabling it to compete successfully in foreign markets. Higher costs of food and, in consequence, higher wages would tend to undermine that advantage in some of the export industries.

Looking beyond the next few years, it is apparent that with a continued growth of population, it will be difficult to maintain self-sufficiency in rice without reducing the per-capita consumption of recent years; however, with the further industrialization of the country, growth of foreign trade, and possible changes in dietary habits, Japan would be in a position to dispense with its traditional policy of food self-sufficiency, and perhaps gain for its people a higher standard of living.

OTHER CROPS

WHEAT

A brief review of wheat production in Japan offers another example of the efforts on the part of the Government to make the country as nearly as possible self-sufficient in foodstuffs.

Among cereals, wheat is the second most important crop, although the value of its production is only about one-tenth that of rice. In the years immediately prior to 1933, acreage and output had shown little change. The average annual (1923-1932) wheat crop area was 1,210,000 acres, with an outturn of 32,000,000 bushels. Domestic production accounted for about two-thirds of consumption, the shortage being covered by imports, valued at 45 to 50 million yen annually.

In 1932 the Japanese Government launched a 5-year plan for the expansion of wheat production, motivated by the desire to alleviate the distress then rampant in the countryside by making wheat growing more profitable, to improve the balance of trade through a reduction of imports, and, even more important, to provide Japan with a sufficient supply of domestically-grown wheat. The plan had as its objects the increase of the wheat area by 490,000 acres, increase in yield by 15 percent, and an increase in the volume of production by 15 million bushels. Subsidies and a higher tariff on wheat and flour were some of the material inducements offered to the farmers.

Judged by the augmented acreage, volume of production, and yield, and by the sharp reduction in wheat imports, the plan was carried out successfully. Three years after the plan was put into operation the wheat area was enlarged by 280,000 acres, and in 1939 Japan had 1,827,000 acres under wheat, or 580,000 acres more than in 1932.

Since the total cultivated area of Japan shows no increase in recent years, the large expansion of acreage under wheat was caused primarily by the decline in acreage under barley, which had been taking place for a number of years prior to the inauguration of the wheat plan. In addition, better wheat prices helped to bring about a larger acreage and output of wheat. A basic factor in this situation is that except on the island of Hokkaido, wheat is a winter crop. ". . . grown exclusively on double-cropped land on which it is subsidiary to the summer or principal crop."[14] For this reason wheat does not compete with the principal summer crops, but it ". . . competes for the land only with other winter crops, the most important of which are naked [hull-less] barley and common barley, though certain minor crops like rape are also competitors."[15]

The average annual yield per acre in the years following the inauguration of the wheat expansion program was 11 percent higher than in the previous 7 years. The larger acreage in combination with the improved yield resulted in a marked increase in production. The 1934 wheat crop of 48 million bushels was practically equal to the Japanese wheat consumption during that year. Further advances have been made since then, the 1939 crop being estimated at 61 million bushels, or nearly double the 1932 output.

As a consequence of this development, Japan's net annual wheat imports, amounting to 15 million bushels (1928-1932) were reduced to an annual average of 3.5 million bushels (1933-1936). In the following 2 years Japan changed from a net importer to a net exporter, to the extent of 10 million bushels per year. The very low level of imports was due to the fact that foreign exchange has not been made available for wheat importation, even though prices of foreign wheat have ranged from 15 to 60 cents per bushel cheaper than those of domestic wheat. This is a war measure caused by lack of foreign exchange, which in turn calls for a minimum of imports and a maximum of exports.

It is important to note that in the years of low imports and high exports, total requirements declined, per-capita consumption being reduced from .70 to .49 bushels (see table 3). This is a case of an exportable surplus attained at the expense of lower consumption, and brought about by the exigencies of the war waged against China. If, on the other hand, Japan maintained its pre-1937 level of consumption, the country would still be on an import basis - considerably reduced, to be sure - rather than on an export basis, even though the country's wheat output has been greatly augmented.

---

[14] Alsberg, Carl L., "Japanese Self-Sufficiency in Wheat," *Wheat Studies of the Food Research Institute*, vol. XII, Nov. 1935, p 66

[15] *Ibid.*, p 66

TABLE 3. *Acreage, yield, production, trade, and consumption of wheat in Japan, 1928-29 to 1939-40*

YEAR	ACREAGE	YIELD PER ACRE	PRODUCTION	IMPORTS		PRODUCTION AND IMPORTS	EXPORTS OF FLOUR[1]	CONSUMPTION	
				WHEAT	FLOUR[1]			TOTAL	PER CAPITA
	1,000 acres	*Bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*Bushels*
1928-29	1,201	26.8	32,220	27,983	219	60,422	10,767	49,655	.78
1929-30	1,213	26.3	31,890	18,324	831	51,045	5,403	45,642	.71
1930-31	1,204	25.6	30,887	24,813	529	56,229	7,953	48,276	.74
1931-32	1,228	26.3	32,304	29,712	264	62,280	7,592	54,688	.83
1932-33	1,247	26.3	32,768	18,802	29	51,599	15,092	36,507	.55
1933-34	1,511	26.7	40,410	16,504	60	56,974	12,795	44,179	.65
1934-35	1,589	30.0	47,660	17,924	59	65,643	16,418	49,225	.72
1935-36	1,627	30.0	48,718	14,503	519	63,740	10,131	53,609	.77
1936-37	1,688	26.8	45,192	7,789	1,099	54,080	4,432	49,648	.70
1937-38	1,776	28.4	50,410	4,620	74	55,107	14,275	40,832	.57
1938-39	1,777	25.5	45,244	1,282	1	46,527	10,490	36,037	.49
1939-40	1,827	34.3	61,086						

[1] Flour converted to wheat on the basis of 1 barrel equals 4.5 bushels

Compiled from official sources

BARLEY

Barley, both naked (hull-less) and common, figures prominently in Japan's food supply, but its importance has been declining, as indicated by the downward trend in acreage, production, and per-capita consumption. From about 1870 to 1910 the area under barley increased from 2.6 million to 3.3 million acres, but since then it has declined to 1,886,000 acres (average 1936-1939). This reduction was not reflected in the output. Thus, while between 1921-1925 and 1936-1939 the barley area declined from 2,630,000 to 1,886,000 acres, or by 20 percent, production during the same periods declined from 85 million to 72 million bushels, or by only 15 percent. The relatively smaller decline in output was due to a steady rise in yield, which practically doubled in the course of 50 years. In the past two decades the increase in yield amounted to about 20 percent.

With declining production, growing population, and a very small volume of imports from the colonies, per-capita consumption has declined from 88 pounds during 1902-1907 to 69 in 1921-1925, and to 52 pounds during 1932-1936. Despite this development, it has been pointed out that "In the supply of rye or naked barley, Japan is practically self-contained, as there has been no importation of this cereal from abroad. As regards barley [common], the percentage of . . . [self-sufficiency] in Japan Proper was 102.1 . . . during the three years 1933-1935."[16]

---

[16] Asahi, Isoshi. *The Economic Strength of Japan*, 1939, p. 131

OTHER CEREALS

In addition to rice, wheat, and barley, the Japanese consume smaller quantities of such cereals as millet, buckwheat, and corn. In 1936 the area planted to these products was estimated at 688,000 acres, of which millet accounted for 328,000 acres, buckwheat 235,000, and corn 125,000 acres. The 1936 volume of production of these cereals is 7,900,000, 3,844,000, and 3,099,000 bushels, respectively. Japan is fully self-sufficient only in buckwheat; in 1936 the country depended upon imports for 35 percent of its millet and 65 percent of its corn.

LEGUMINOUS PRODUCTS

The leguminous crops consist principally of beans and peas. The total area of these crops in 1936 was 1,500,000 acres, of which 807,000 acres were planted to soybeans. Soybeans are a staple food of the Japanese. Because of the competition from Manchurian soybeans, the extension of mulberry tree plantations prior to the 1930's, and orchard and vegetable farming, the soybean area has declined from 1,091,000 (average 1920-1924) to 821,000 (average 1933-1937) acres, or by 25 percent. Production followed suit, with a decrease from 18 to 12 million bushels, or of 32 percent. Total consumption of soybeans has increased from 32 million bushels during 1920-1924 to 43 million in 1938. The increase, however, failed to keep pace with the growth of population, the result being that the per-capita consumption during this period declined from 38 to 32 pounds. In 1938 Japan's production of soybeans accounted for only 30 percent of the country's consumption. The shortage of about 30 million bushels, valued at approximately 95 million yen, is made up by imports from Manchuria (supplying 80 percent) and Chosen (20 percent).

Next to rice imports, soybeans form the largest single item of foodstuff imports and the fifth largest item among commodities imported into Japan. From the Japanese point of view, the mitigating factor is that the main source of supply is Manchuria, ". . . and imports from that country do not require the provision of foreign exchange. It may therefore be said that, from the practical point of view, Japan is self-supplied with this commodity too."[17]

With respect to other beans, such as "azuki" and "broad" beans, the percentage of Japan's domestic production with respect to total consumption has been estimated as 53 and 84 percent, respectively.[18] The condition that applies to imported soybeans applies to these beans as well, since they too originate in Manchuria.

TUBER AND ROOT CROPS

These crops consist of a variety of products, among which potatoes, especially sweetpotatoes, are most important. In 1936 the area of tuber and root crops was estimated at 1,600,000 acres, potatoes alone accounting for 1,073,000 acres

---

[17] *Ibid.*, p. 132.

[18] *Ibid.*, p. 132.

In the course of the past decade the potato acreage has increased by 18 percent, and production has increased from 169 to 216 million bushels, or by 13 percent. The rise in output was outstripped by the increase in population, with the result that per-capita consumption has declined from 174 to 169 pounds. In the same year (1936) the per-capita consumption of all other tuber crops amounted to 48 pounds. In general, Japan is not far behind European countries in the consumption of such food. It has been pointed out in this connection that "Whereas in Germany and England . . . these foodstuffs contribute on an average 15 and 10 per cent. respectively of the total energy intake of the whole population . . . similar percentages are . . . only to be found for Japan as a whole and among Chinese farmers (respectively 11 and 9 per cent.)."[19]

VEGETABLES AND FRUITS

Japan produces vegetables and fruits in quantities exceeding the country's requirements. The area planted to these crops has been increasing, with an accompanying rise in output. In 1936 Japan consumed a total of 7 billion pounds of vegetables, or about 100 pounds per person, and 2.2 billion pounds of fruit, or 32 pounds per person. Fruit consumed in Japan represents a fraction of 1 percent of the total calorie intake, as against a normal 3 percent in England or Germany.

ANIMAL FOODSTUFFS

This group may be divided into two classifications of unequal importance: aquatic products, and meat and dairy products - the latter relatively unimportant.

Fish: Fish and fish products are the most important source of animal protein in the diet of the Japanese, comparable to meat and dairy products in the western countries. In 1936 a total of 1,534,000 persons was engaged in fishing in some capacity. Because Japan is entirely sea-girt, has a long coast line, good fishing harbors, experienced fishermen, and a supply of fish varied in kind and vast in amount, Japan ranks as the foremost fishing country in the world. The share of the Japanese Empire in the total world catch has been variously estimated from a fourth to a third. In 1936 the fish catch of Japan proper amounted to 8.8 billion pounds, of which there was consumed an estimated total of 7.3 billion pounds, or a per-capita consumption of 104 pounds.

A comparison with fish-consuming European countries makes clearer the importance of fish in the Japanese diet. Thus in England, one of the chief fish-consuming countries in Europe, the annual per-capita consumption of fish was only 53 pounds in 1934-1935, and in Germany the volume of consumption was not more than half that of Great Britain. "In neither of these two countries," it is noted, "was more than about 1 per cent of the total calorie intake supplied by fish; in Japan, on the other hand, . . . three times as much."

[19] Lindstedt, H., *op. cit.*, p. 409 E.

[20] *Ibid.*, p. 411 E.

Meat and dairy products: Meat and dairy products play a minor role in the Japanese diet. Stock breeding has not thrived in Japan, because of the limited area available for pasture and feed crops. The compelling need to provide a large volume of food crops is responsible for the existing type of land utilization, with its emphasis on cereal production. According to one authority[21] the place of animal husbandry in Japan is insignificant because:

> ". . . the production of meat is an expensive way of supplying food calories, more especially from the viewpoint of the amount of land utilised. Given two equal areas of land subject to similar conditions, one devoted to producing plant foodstuffs to be consumed directly by man will produce more food calories and support more people than one devoted to producing meat for human food."

In 1936 Japan produced a total of 1.7 million head of cattle, 1.1 million swine, only 61,000 sheep, and 50 million chickens. Under the circumstances, the production and consumption of meat, eggs, and dairy products is very small indeed. The per-capita consumption of meat (excluding poultry) is about four pounds, or four times that consumed in the late 1880's. The increased volume, however, is insignificant in the light of the 65 to 130 pounds consumed in western Europe and the 125 pounds consumed in the United States.

Most of the meat is eaten by the wealthy inhabitants of the urban centers, "and as regards the rural population of Japan it still holds good that meat is eaten only about once a year."[22] A Japanese eats about 50 eggs and not quite a pound of dairy products per year (see table 5). The food habits of Japan being what they are, the country considers itself self-sufficient in milk products, eggs, hams, and bacon, depending upon imports for only 7 percent of its fresh meat and 23 percent of its tinned meat.

FOREIGN TRADE AND SELF-SUFFICIENCY

In the discussion concerning the production of foodstuffs in relation to consumption, reference has been made to the main items of Japanese foreign trade in foodstuffs, thereby ascertaining the degree of Japan's self-sufficiency in individual products. It may be of interest to observe the same development through a summary of (1) the value of food imports versus value of food exports; (2) the share of imports in the total value of Japan's foreign trade; (3) the place of imports in relation to the value of food consumed; and (4) the relationship of the volume of food imports to the total volume of consumption.

Raw or unprocessed foodstuffs, such as beans, peas, wheat, and fresh meat, are the chief foreign import items; with respect to exports, there has been an expansion of canned provisions, such as tinned fish and fruit, and in flour, sugar, and tea. In general, exports of manufactured foodstuffs have been increasing more rapidly than exports of raw foodstuffs in the form of fresh fish, vegetables, and fruit.

---

[21] Penrose, E. F., *Food Supply and Raw Materials in Japan,* 1929. p. 64.

[22] Lindstedt, H., *op. cit.*, p. 409 E, quoting W. H. Adolph, "A 4000-year Food Experiment." *Scientific American,* Dec. 1930, p. 426.

TABLE 4 -Foreign trade in foodstuffs of Japan proper,[1] 1929-1937

YEAR	EXPORTS[2]		IMPORTS[3]		NET EXPORTS (+) OR IMPORTS (-)
	VALUE	PERCENTAGE OF TOTAL EXPORTS	VALUE	PERCENTAGE OF TOTAL IMPORTS	
	Million yen	*Percent*	*Million yen*	*Percent*	*Million yen*
1929	160.1	7.6	271.2	12.2	-111.1
1930	128.8	8.9	208.3	13.5	-79.5
1931	102.3	9.1	158.6	12.8	-56.3
1932	104.3	7.6	160.7	11.2	-56.4
1933	158.0	8.6	173.2	9.0	-15.2
1934	171.9	8.5	174.4	7.6	-3.5
1935	197.1	8.0	192.6	7.8	+4.5
1936	203.7	8.3	231.2	8.3	-27.5
1937	248.1	7.9	251.5	6.6	-3.4

[1] Excluding Chosen and Taiwan.
[2] Does not include reexports.
[3] Does not include reimports.
Japan-Manchoukuo Year Book, 1939.

Until very recently Japan has had an excess of food imports over food exports, amounting in 1925 to 245 million yen ($100,538,690). Since then, however, the excess has been steadily diminishing. In 1934 imported food was valued at 174.4 million yen ($51,822,960) as against 171.9 million yen ($51,080,085) for exported food, resulting in an excess of only 2.5 million yen ($742,875). In 1936 imports exceeded exports by 28 million yen ($8,126,160), but were reduced once again to 3 million yen ($863,730) in the following year. In terms of value, exports and imports are now practically balanced.

The share of Japanese foodstuffs exports in relation to the total export trade of that country has changed little over a period of years. In 1929-1937 this share averaged about 8 percent of the total. On the other hand, the share of food imports in Japan's total import trade has been steadily diminishing; it amounted to 11.6 percent in 1929-1933 and 7.6 percent in 1934-1937. The decline shows how small a place food imports occupy in the growing import trade of Japan. The position of Japan in this respect stands out even more clearly when compared with a similar relationship in Great Britain, Germany, and the United States. In these countries, the value of food imports accounts for approximately 40 percent, 35 percent, and 28 percent, respectively, of the value of total imports.

The values of Japan's food imports lead to another observation. It has been estimated that during 1933-1935 the average annual value of the food consumed in Japan (exclusive of marine products) was 2.611 million yen;[23] the annual food imports, averaging 179 million for the same years, represented 6.8 percent of the total value of foodstuffs, other than fish, consumed in the country. If the imports from Manchuria were excluded, the percentage would be reduced to 4.7. Japan's food exports, too, are relatively unimportant in value or volume in comparison with total consumption. What is really taking place in this instance is a profitable exchange of what might be termed surplus commodities for other foods of higher nutritive value.

---

[23] Asahi, Isoshi, *op. cit.*, p. 121

In 1936 Japan consumed an estimated total of 74.6 million pounds of foodstuffs (see table 5); 7.631 million pounds of this volume were net imports, or 10.2 percent of total consumption. It must be noted, however, that these imports include 6.065 million pounds of rice and sugar shipped from Chosen and Taiwan; thus, net imports of foodstuffs from foreign countries accounted for only 2 percent of the total volume of consumption. For the present, then, Japan's dependence upon imported foodstuffs is very limited.

Self-sufficiency in foodstuffs is not necessarily synonymous with adequacy of food supply or a rise in standard of living. The per-capita consumption, both in volume and quality of food, in Great Britain and Germany - which depend upon food imports to a large degree - is greater than in many a self-sufficient country. On the other hand, Chosen is self-sufficient in rice, the main article of food; but for reasons already indicated, the per-capita consumption has been steadily declining.[24] In other words, underconsumption is sometimes the basis of a country's agricultural self-sufficiency.

In applying these observations to Japan, the factor to note is the per-capita consumption of the principal food items over a period of years. Consumption of rice increased from 288 pounds in 1888-1897 to 354 pounds in 1917-1926. In the years following it declined to about 343 pounds. Even this figure, however, shows that a Japanese consumes 19 percent more rice than in the last decade of the nineteenth century. Wheat consumption rose from 25 pounds during 1888-1897 to 44 pounds in 1918-1927 and remained at 43 pounds during the period of 1928-1937; soybean consumption rose from 17 pounds in 1912-1916 to 28 pounds in 1936. Consumption of fish made the most striking advance; namely, from 29 pounds in 1900 to 100 pounds in 1936. Sugar consumption rose from 10 pounds in 1896-1898 to 28 pounds in 1936. Per-capita consumption of less important cereals and, to a small degree, of potatoes, has declined, whereas consumption of vegetables has expanded. Although meat and dairy products are insignificant in the Japanese diet, their consumption has shown an upward trend.

On the whole, the level of food consumption in the Japanese Empire has risen during the course of several years, even though in the past decade consumption of some principal items of the diet has not advanced, and, in fact, has declined slightly. The conclusion is that insofar as Japan proper is concerned, the large increase in population has not been accompanied by a lowering of the standard of living, and that Japan's self-sufficiency has not been achieved at the expense of the level of consumption.

[24] See "Chosen's Agriculture and Its Problems," *Foreign Agriculture*, Feb. 1940, table 3, p. 104.

QUANTITY VERSUS QUALITY OF JAPANESE FOOD

Table 5 summarizes the quantitative aspects of the Japanese food situation. It shows that in 1936 the per-capita consumption of all foodstuffs amounted to 1,063 pounds. This figure differs only slightly from Doctor Grey's findings in his study on the food of Japan prepared for the League of Nations. He estimated that in 1925 a Japanese consumed a total of 1,088 pounds of all foods, or, reduced to its equivalent caloric value, of 2,731 calories per day.[25] This led him to the conclusion that the quantity of food consumed in Japan ". . . compares well with that of other countries, and there is no ground for the statement sometimes made that Japan is in an inferior position to other countries in this respect."[26] Since the 1936 data are practically the same as those of 1925, with respect to both total volume and volume of individual items, it may be stated that in 1936, too, Japan had a volume of food sufficient for its needs.

TABLE 5.–*Production, trade, and consumption of foodstuffs in Japan, 1936*

PRODUCT	PRODUCTION	EXPORTS	IMPORTS	CONSUMPTION	
				TOTAL	PER CAPITA
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*	*Pounds*
Rice	21,155	203	[1] 3,700	[2] 24,652	354
Wheat	2,712	266	533	2,979	42.4
Barley	2,952			2,952	42.0
Other cereals	753	5	947	1,695	24.1
Soybeans	749	1.5	1,220.5	1,968	28.0
Other beans	560	70	393	883	11.1
Potatoes	11,957	89		11,868	169.0
Other tuber and root crops	8,284			8,284	118
Vegetables	7,112	64	6	7,054	100.4
Fruit	2,380	160		2,220	31.6
Sugar		419	[3] 2,365	1,946	27.7
Tea	106	36	1	71	1.0
Fish	[4] 7,582	248		7,334	104.0
Meat	298	1	39	336	3.7
Eggs	413	1		412	5.8
Dairy products	65	11	1	55	0.7
Total	67,078	1,574.5	9,205.5	74,633	1,063.5

[1] Of which 3,600 million pounds are from Chosen and Taiwan.

[2] Includes difference between carry over at beginning and end of year.

[3] Of which 1,889 million pounds are from Taiwan.

[4] Exclusive of fish fertilizer and fish oil.

Compiled from official sources.

---

[25] Grey, Egerton Charles, *Food of Japan.* (League of Nations), 1928, pp. 9, 28, 29.

[26] *Ibid.*, p. 16.

Although the food consumed in Japan is sufficient from a quantitative point of view, an analysis of its quality reveals glaring deficiencies, largely because of the fact that in Japan vegetable, rather than animal, food predominates. A disproportionate amount of cereals, for instance - especially rice - is consumed in relation to other classes of foods. The level of animal foods consumed is very low; the quantity of meat, poultry, milk, and eggs is insignificant compared with diets of western countries. Less than 4 percent of the caloric intake of a Japanese is of animal origin, as against 30 to 40 percent in western Europe.[27]

A diet of this nature is almost certain to be low in efficient protein, in minerals, and in vitamins. This is especially true when, as is the case in Japan, many of the foods are processed in such a way as to reduce their value as a source of these nutrients. According to Doctor Grey, only 18 percent of the protein intake was from animal sources.[28] In the United States, animal proteins make up more than 35 percent - usually 40 or 50 percent - of the total intake of protein. This is considered a better proportion from the point of view of nutritive value. The minimum quantity of fat or fatty substances desirable in a diet is not known. In Japan the daily intake of fat ranges from 15 to 20 grams. Little of it comes from milk or fish, and it is supposed, therefore, that intake of fat-soluble vitamins is low, unless liver oils from fish are widely used in the diet.

This discussion indicates that a purely quantitative self-sufficiency has resulted in an unsatisfactory situation with respect to the quality of Japanese food. In Doctor Grey's opinion, "The consumption of quantity without quality is in some respects more dangerous than starvation, for the latter is obvious and a remedy is sought; the former may remain a hidden source of evil, gradually reducing the vitality of the people. This appears the great danger of Japan."[29] A food policy with emphasis on quality as well as quantity is the only means of correcting the important deficiency in Japan's diet.

CONCLUSIONS

An examination of the pertinent factors relating to Japan's food supply indicates that with the help of Chosen and Taiwan the country is practically self-sufficient from a quantitative standpoint. This measure of sufficiency has been achieved as the result of intensive utilization of the soil, partly at the expense of the standard of living of the people of Chosen. If, for instance, rice were consumed in Chosen in a quantity equal to that prior to annexation by Japan, foreign rice imports into Japan would represent not 3 percent, but 14 percent of total domestic consumption.

Another weak point in Japan's self-sufficiency scheme is the fact that from a qualitative point of view, the diet is in need of much improvement. The food habits of the country are based on the predominance of cereals and vegetables; and in consequence, there is a marked deficiency of minerals, vitamins, and of sources of efficient protein. This state of affairs is due partly to established food customs and partly to the policy of relying almost exclusively upon the resources of Japan proper and of its colonies.

---

[27] [illegible] H., *op. cit.*, pp. 400 E, 403 E.,

[28] Grey, Egerton Charles, *op. cit.*, p. 28.

[29] Ibid., p. 40

For the time being, the Japanese Empire has succeeded in supplying Japan proper with the requisite volume of food from domestic sources. The same situation is likely to continue during the next few years. When a longer period is taken into consideration, however, the prospect of a continued supply of food from almost entirely domestic sources is problematical in view of a continued growth of population, unchanged dietary habits, and limited agricultural resources. The 10-year plan that contemplates the opening up of an additional 401,000 acres of arable land in Taiwan at a cost of some 130 million yen is a case in point. The difficulty is one not only of cost but of the lack of new land; yet the scheme, if realized, calls for the addition of as much arable land in the next 10 years as has been added in the past 30 years.

It has been suggested that a radical change in the diet of the Japanese people might result in an increase in the future total supply of food products. Such a change, however, could not be along the lines of vastly increased consumption of animal and dairy products, since this would require greater additions of new pasture land.

Views have also been expressed to the effect that ". . . the food problem [in Japan] can be solved only by substituting some more economical food, such as potatoes, for rice, or by lowering the standard of living of the agricultural population so as to enable them to cultivate the lands which at present, because of their low yields, lie unused."[30] The standard of living of the Japanese farmer, however, although higher than that of the farmer in other parts of the Orient, is still too low to make such proposals tenable. Furthermore, it may be remembered in this connection that the level of per-capita consumption in Japan rose until about the nineteen-twenties, but that on the whole, this tendency has come to a halt in more recent years.

A more likely solution may be suggested by the fact that in the present stage of economic development, the total population of a country does not depend upon domestic resources for food, providing the country can find an outlet for its productive capacity by means of industry and trade. England is a classic example of this. If in the future Japanese economic policies should be shaped in accordance with this concept, the importance of agriculture in the total economy would decrease, whereas that of industry and trade would rise still further. The problem of obtaining food for some 90 million Japanese would then become chiefly one of finding industrial and commercial employment, and would no longer be an agricultural problem, as in the past. Such a program would undoubtedly be contrary to the basic policy of maintaining a balance, even if a precarious one, between industry and agriculture;

---

[30] Ishii, Ryoichi, *op. cit.*, p. 183. The author refers to Dr. Yasuma Takada's book, *Social Nature of the Food Problem*, 1937, p. 187.

however, under the pressure of a vastly increased population and the relatively stationary output of agricultural products, Japan may yet be compelled to seek a solution in greater dependence on food imports for a considerable share of its total food consumption.

§

CONTROL OF AGRICULTURAL PRICES IN THE UNITED KINGDOM . . . . .

By Robert B. Schwenger*

Since December 1, 1939, the Government of the United Kingdom has been taking measures to prevent undue increases in the prices of essential foodstuffs and certain other items of importance in the cost of living. These measures are costing the Exchequer the equivalent of almost four and a half million dollars a week. They are significant as an indication of the determination of the British Government to prevent wartime price inflation. If the cost of living were to rise unduly, wages would be forced up. Higher wages would cause a more than proportional increase in the prices of finished products, including those affecting the cost of living. Wages would again rise and a vicious spiral of inflation would be under way. This not only would bring chaotic conditions in the national economy but also an unbalanced and, from the point of view of the conduct of the war, inefficient distribution of the goods available for consumption.

A report from the American Embassy at London discusses agricultural price developments in the United Kingdom in relation to the officially declared British objective of assuring reasonable stability of retail prices of food and other essential staple commodities. This objective is designed to prevent a vicious spiral of inflation (through alternate increases in the cost of living and in wages) without forcing saving by the imposition of heavy taxes in the lower-income brackets.

The British Government apparently intends, by keeping down the prices of foods and other staples, to prevent any further substantial rise in the cost of living. It has preferred this alternative to that of directly raising the incomes of persons in the lower-income brackets, in spite of the fact that the latter procedure would be more direct and would probably involve a lower cost to the Exchequer. This choice is apparently based on the expectation that price stability for essential commodities will have great weight in determining the attitude of labor toward the wages question and hence toward the problem of avoiding secondary price inflation.

Extent of control: It appears to be the intention of the British Government to limit the control to commodities of the most essential nature. In the case of rationed goods, the prevention of price rises cannot greatly increase the amounts consumed. Where non-rationed goods are concerned, it apparently is intended to extend the control only to commodities (such as bread) for which demand is highly inelastic and those (such as milk) of great importance to national health. Retail prices of the more essential foodstuffs have been rigidly fixed, although changes necessitated for seasonal or other reasons are made from time to time.

---

* Senior Agricultural Economist, Office of Foreign Agricultural Relations.

The items involved are meats (including bacon and hams), butter, imported lard, margarine, cooking fats, potatoes, herring, dried fruits, canned salmon, eggs, sugar, and tea. Some of these prices (of margarine, cooking fats, and tea) have subsequently been decontrolled, but they remain under Government supervision. The price of bread and the retail price of flour are being held in a fixed relation to the controlled wholesale price of flour by means of an informal understanding. A scale of bakers' margins has been established for this purpose.

Supervision of prices. General supervision of retail prices of foodstuffs is in the hands of local food-control committees; however, prices of certain essential articles made from agricultural raw materials (such as clothing and household textiles, medium-priced knitting yarns, and sandbags) are being controlled, as from January 1, 1940, under general price legislation.[1] Under this legislation, only such price increases as are reasonably justified on the basis of increased costs are permitted over prices of August 31, 1939. This control, although directed primarily at retail prices, extends also to wholesale prices of materials used in the manufacture of the regulated retail goods. The accumulation of stocks of the price-regulated goods is also prohibited.

The supervision of price control under the Prices of Goods Act is entrusted to a central committee and 17 local committees. Penalties for violations of the regulations are severe. The committees do not employ inspectors, however, and must rely upon individual consumers to initiate legal action directed toward enforcement of the regulations. Retail associations have obtained official sanction of maintenance of their normal profit margins; but the controls, to the extent that they are enforced, will set a definite limit to profiteering.

Cost of program. The cost of the program appears to be about £1,100,000 sterling[2] per week, or nearly £60,000,000 per year. This does not include grants paid on the basis of pre-war programs to assist producers in such branches of agriculture as milk, cattle, and wheat production, but does include a weekly sum of £480,000 allocated to reduce the price of milling wheat. It is claimed that the price of bread, held at 8.5 pence,[3] would be 10 pence without this subsidy. A weekly sum of £235,000, paid to hold the price of milk at 7 pence per quart, is also included. It is claimed that without control the price would be 8 pence. Domestically produced meat is being subsidized at the rate of £320,000 per week, in addition to which there is a bacon subsidy estimated at approximately £80,000 per week.

Effects. The Government of the United Kingdom claims that without subsidy payments the index of the price of food would have risen by 7.5 percent between December 1, 1939, when the program went into effect, and January 1, 1940; whereas it actually remained constant. Although the food index has since resumed an upward trend, the payment of the subsidy has retarded the rate of increase. It is claimed that, up to and including February, 1940, the program has prevented an increase in food prices of about 8.7 percent above the level of September 1, 1939.

---

[1] The Prices of Goods Act of November 16, 1939, and subsequent Orders

[2] At the current official rate of exchange, the pound sterling is equivalent to $4 025

[3] At the current official rate of exchange 1 penny is equivalent to 1 68 cents.

The cost of living index published by the Ministry of Labour showed a rise of 11.6 percent between September 1 and December 1, 1939, but a further rise thereafter (to March 1, 1940) of only 3.9 percent of the September 1 level. The food components of this index rose 13.8 percent during the September 1 - December 1 period.

In December and January, price increases for meats, bacon, cheese, and potatoes resulted in a further rise of 2.9 percent. During February, however, the cost of living remained stable, since price increases for margarine, cheese, eggs, and potatoes were offset by a reduction in bacon prices under the new bacon subsidy. Retail prices of clothing on March 1 were 29 percent above the September 1 level. The changes in the cost of living index and its principal components were as follows:

	RISE FROM SEPTEMBER 1 1939-DECEMBER 1. 1939	RISE FROM SEPTEMBER 1, 1939-MARCH 1, 1940
	Percent	*Percent*
Combined index of cost of living	11.6	15.5
Food	13.8	16.7
Rent	0.0	0.0
Clothing	18.1	28.9
Fuel and light	6.8	12.3

It is difficult to appraise official claims as to the effectiveness of the price control policy in keeping down the cost of living of persons in the lower-income brackets. The official cost of living index is based on a study of family budgets made in 1903-1904 and slightly modified in 1914. Later studies indicate a different distribution of expenditure, which has doubtless been further altered under the rationing system. It is probable, therefore, that the effect upon the actual cost of living is less than that on the Government index

§